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ABSTRACT

The effect of the School District Equalization Act (SDEA) on school financing in Kansas is analyzed in this report. Included is a discussion of the context of the present legal action, a description of the present statutory scheme and evaluation framework, a longitudinal statistical assessment of the SDEA in relation to the entire state and differences among enrollment categories, an application of the findings to the current legal debate, and an analysis of the SDEA's effect on Turner school district, which is challenging the equity of the plan. A conclusion is that the SDEA places Turner school district in an inappropriate enrollment category by stressing efficiency measures rather than educational needs, which creates unequal opportunities. Recommendations include increasing the state's share of district educational budgets and the restoration and reexamination of the SDEA. Appendices include one-factor ANOVA, Pearson correlation coefficient and regression analysis, and mean-based statistical data for the 1983-84 and 1988-89 school years. Fifteen tables are included. (20 references) (LMI)

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Fiscal Equity in Kansas Under The School District Equalization Act: Consultants' Analysis on Behalf of Turner U.S.D. 202 in Mock v. State of Kansas

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August 1990

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FISCAL EQUITY IN KANSAS
UNDER THE SCHOOL DISTRICT EQUALIZATION ACT:
CONSULTANTS' ANALYSIS ON BEHALF OF TURNER USD 202
IN MOCK v. STATE OF KANSAS

INTRODUCTION

In July 1990, Turner Unified School District 202 in Wyandotte County, Kansas, through its attorney requested consultant assistance in evaluating the school finance formula in its action against the state. The principal investigator, Dr. David C. Thompson and co-investigator Dr. David S. Honeyman, designed and conducted the report in consultation with Dr. R. Craig Wood and with the firsthand knowledge and experience of Mr. Nelson Hart, former business manager of Turner USD 202. Consequently, this analysis represents a collaborative design whereby the principal investigator's interpretation of both fact and effect of the Kansas School District Equalization Act on public education in Kansas, and in particular on Turner USD 202, has been considered by multiple scholars and other experienced persons.

It should be noted at the outset that the contents of this analysis are the independent impressions and scholarly opinions of the authors and do not imply or express a position of any other organization with which they are affiliated. Therefore this analysis may not be construed to reflect official or unofficial positions of Kansas State University, the University of Florida, the UCEA Center for Education Finance of which the authors are currently Codirectors, the University Council for Educational Administration (UCEA) or its member institutions, or any other public or private agency. This analysis is further limited to the scope and accuracy of documents and other written or oral communication provided by the Kansas State Department of Education and the Turner USD 202 Board of Education and its official representatives. Further, this analysis is limited to the particular issues believed to be most appropriate to Turner's lawsuit against the state. It should also be clearly stated that reference to legal issues may not be construed as more than the application of scholarly research to the present controversy and cannot be acted upon absent qualified legal counsel. Finally, while respectful disagreement may arise regarding our scholarly opinions, to reach additional conclusions from this analysis without our assistance through further research and data interpretation is entirely inappropriate.

Under the above conditions, this analysis of the effect of the School District Equalization Act on the financing of schools in Kansas and its particular effect upon USD 202 consists of six parts. First, we set forth the initial framing of the report in the context of the present action. Second, we identify the broad parameters and notable features of the Kansas School District Equalization Act of 1973 as amended (hereafter referred to as the SDEA or the statutory scheme) and as it particularly affects this analysis. Third, we set out the framework for our evaluation of the SDEA. Fourth, we offer a statistical assessment of the longitudinal performance of the SDEA under selected equity standards as it relates to the entire state and, in specific, to any differences within and among various enrollment categories. Fifth, we advance arguments relating to the relationship between the statistical analysis and the substantive effect of the SDEA, especially as it applies to Turner's contention of disparate and inequitable treatment by the statutory scheme through the operation of the fourth enrollment category's lower median budget per pupil. Sixth and finally, we conclude with our synthesis and conclusions regarding the effect of the SDEA and enrollment categories on USD 202.

THE PRESENT ACTION IN CONTEXT

Over the past forty years, more than a hundred challenges to school finance mechanisms have been brought in state and federal courts.[1] In a battle over equal educational opportunity popularly typified by Brown v. Board of Education,[2] few states have escaped litigation as reformers have sought greater equity in the funding of schools on the presumption that fiscal resources have a marked impact on the outcomes of schooling. Beliefs about the effect of resources on educational outcomes have been so intense that reformers have argued fervently that equality of educational opportunity must also encompass fiscal equality in order to be complete, and that the failure to fully equalize fiscal resources is to make a mockery of the equal opportunity mandate.[3] These arguments, supported by intuition, logic, and models of successful litigation, have made a coherent and persuasive case in many states for including education among the fundamental constitutional rights deserving the full and equal protection of the laws in order to effectuate the equality mandate. But although school finance reformers have made many gains, the reform agenda is still being pursued. Rather than diminishing with either success or time, reform is once again on the rise, as in the past few months statutory schemes for financing schools have been under renewed attack in many states because fiscal exigency has forced the resolution of perceived inequities in financing schools out of the legislative chambers and into the judicial arena.

The broad context of school finance equity litigation is not without meaning to this action. It is precisely the larger history of reform which establishes the conditions that presently bring Turner Unified School District 202 and the State of Kansas under the purview of the court because the broad principles governing equal opportunity are being argued to apply specifically in this instance to the Kansas statutory scheme for financing public education. These issues are especially germane because the Turner school district has called into question the operation of the SDEA, both as it functions under the principle of equalization and through the operation and effect of enrollment categories which are said to adjust for certain attributable costs of education. From Turner's perspective, the question rests in whether the principle of equalized educational opportunity is uniformly operational, and whether equalization can genuinely be served when the only differential costs recognized by the SDEA are those related to enrollment size of the district rather than extended to include certain other attributable costs relating in part to economic and geographic factors which may also affect the actual price of educational services. The issue finally becomes whether the SDEA has achieved full equity, and whether in failing to account for other cost differentials, the SDEA satisfactorily addresses the intent of equalization as expressed by adequate and equitable financing in the modern context of equal opportunity. It is the contention of the Turner school district that the statutory scheme has not fully met the equality mandate, and that the SDEA's indifference to cost factors apart from size is inadequate and inequitable by failing to recognize costs inherent to their urban geographic placement and their composite urban character because such failure denies their students equal educational opportunity and equal protection as defined by their fundamental right to fiscal resources appropriate to meet their educational needs.

These issues of reform, among others, establish the context for the present analysis which seeks to statistically and substantively determine certain effects of the SDEA and the use of enrollment categories generally and on the Turner district specifically. In so doing, this analysis is predicated on both the scholarly perspective of legal reform in school finance and on certain value choices about the nature of equity. Those predominant considerations reflect the general premises that equalized educational services are of benefit to children; that the Kansas legislature has unmistakeably concurred with that concept by the statutory enactment of the SDEA; that the legislature has by its actions through the SDEA and certain other constitutional provisions made implicit and explicit commitments to the concepts of fiscal resource impacts and equal opportunity and equal protection; and that the generally accepted principle by the scholarly community and likewise many courts that resource inputs are the only realistic measure of fiscally defined equal opportunity forces the conclusion that the relationship of wealth to educational opportunity should be the object of positivist intervention. Finally, there is a value incorporated into the analysis which suggests that while school aid formulas are constructed in the context of legal, social and political environments and may thus never be sterilely perfect,[4] there is an implicit expectation that if a state aid mechanism is to be effective, that statutory scheme should have a powerful impact over time by eliminating wealth-related disparities and should not operate to the disadvantage of identifiable populations.

The foregoing contentions form the context of this analysis and are critical to its outcome because they place the State of Kansas and the SDEA into an explicit definition of how equal educational opportunity should operate in regard to every school district and every child. As Turner USD 202 believes that the state is unreasonably discriminatory through the SDEA and the operation of enrollment categories because the district must compete in a marketplace where it alleges fiscal disadvantage on many factors including membership in an inappropriate enrollment category which yields fewer dollars per pupil, the context of how equity should operate in Kansas must ultimately frame this analysis. We have therefore explored the SDEA within this context by posing several questions. First, has the SDEA successfully eliminated wealth-related educational opportunity? If it has not, legislative intent in enacting an equalization formula is by definition violated. Second, are there formula-based inequities in the enrollment category classifications? While absolute perfection may not be possible, any inequities should not be irrationally related to the aims of equalization, and any inconsistencies should further show compelling interest. Third, are there inequities related to the enrollment categories which in fact unreasonably disadvantage Turner USD 202 by its fourth enrollment category status? If such flaws do exist, their specific effect on Turner must be seen as both arbitrary and contrary to full equal opportunity and fiscal neutrality. Fourth, what may be concluded about the operation of the SDEA's effect on the actual delivery of educational services in the Turner district? If there are differential statistical effects which bear out in real dollars and genuine opportunity, they should not be allowed to stand as a compelling interest or even rationally furthering a legitimate state purpose. Fifth and finally, if there are inequities, how might they be redressed? These questions, answered in the five-part format described earlier, provide the context which defines both the present action and an equitable statutory scheme.

The present action is thus framed in the context of a complete definition of equity which states that adequate and equalized fiscal resources are prerequisite to equal educational opportunity, that the legislature has committed the state to those ends, and that any attempt to justify variations from complete equality is a grievous wrong against the children of the state. Under these conditions, this analysis can offer a significant contribution to the resolution of plaintiffs' claims of unequal educational opportunity and violation of their fundamental right to an education and the full and equal protection of the laws by assessing the statistical and substantive effects of the SDEA on education in Kansas.

THE PRESENT STATUTORY SCHEME

Prior to the Kansas School District Equalization Act of 1973, Kansas distributed state aid to public schools through a foundation plan. Funds were allocated to school districts based on several factors including years of teaching experience and accumulated college hours of certificated staff, the pupil-teacher ratio of the district, and a county economic index. Under the foundation plan, districts were encouraged to improve educational services through state financial incentives aimed at supporting those elements thought to contribute most meaningfully to educational achievement. With the developing school finance reform agenda of the late 1960s and early 1970s, however, the Kansas finance plan came under criticism because it perpetuated inequality between wealthy and poor schools as wealthy districts were better positioned to purchase those resources thought to significantly affect educational quality.

With the onslaught of court cases arising from the state education finance reform movement popularized in 1971 by Serrano v. Priest,[5] the Kansas legislature began to express concern about the state's school finance scheme and and also responded to Caldwell v. State[6] by enacting the Kansas School District Equalization Act in 1973.[7] The basis for the SDEA was to provide an adequate level of funding for school districts, to determine local capacity to pay for educational services, and to recognize the impact of resources on educational opportunity through the principle of state aid in inverse proportion to ability to pay. A significant shift from the foundation formula which had based state aid on factors favoring wealthier districts, the SDEA reversed the state's role by making the state a larger partner in poorer districts while decreasing aid to districts whose wealth base was strong.

The operation of the new SDEA called for districts to adopt general fund budgets within basic budget lids determined annually by the legislature. Under the plan, districts were also divided into enrollment categories based on the notion of approximating the costs of doing business. The median actual expenditure per pupil in each legislatively determined enrollment category in the year prior to the SDEA was assumed to be both a function of local choice and representative of an adequate educational program. Although the use of a median rather than mean budget per pupil will later be arguable from an equity perspective, the median was selected as the factor around which the equalized budget lids would operate because it found the middlemost point in the expenditure distribution and was less sensitive to outliers at either expenditure extreme. After determining the median budget per pupil for the enrollment category, budget lids were applied wherein districts which had spent less in the prior year than the median per pupil were allowed to increase their budgets up to 15 percent over the previous year, while districts which had spent more than the median were permitted to raise their budgets by only 5 percent. This differential in allowable increase, when used in combination with other wealth-related factors weighted in favor of state support for low-wealth districts, was the operationalization of the equalization intent of the legislature to narrow the expenditure gap between wealthy and poor districts and to disengage wealth amd educational opportunity with sensitivity to factors influencing higher costs in some districts.

Although slightly oversimplified in the above illustration, the basic concepts of medians and budget lids were the starting point for a complex equalization formula designed to grant aid in inverse proportion to local fiscal capacity. The budget lids allowed each district to determine its legally permitted budget by comparing its proposed expenditure per pupil to the median of its enrollment category to determine its allowable increase and then to derive the district's budget by multiplying the budget per pupil by the fulltime equivalency enrollment (FTE) of the district. Once the district's maximum budget was established, that amount was entered into the SDEA formula in order to determine the state's share. Essentially a process of deducting the legislature's definition of local revenue capacity from the proposed budget on the assumption that deducted amounts truly represented local ability to pay, the remaining balance would be funded by the state. In the original SDEA of 1973, deductions were made for local property tax revenues, intangibles tax, amounts of state income tax rebated under state law to school districts, and certain federal funds. Those deductions formed the definition of local ability to pay and, as seen in Figure 1, have been altered by legislative mandate over the years to reflect ongoing debate over how local ability should be defined.

In addition to the obvious intent to equalize educational opportunity, two other factors have particularly distinguished the SDEA by profoundly affecting its operation. The first factor was the equalization of property wealth as a major element in determining local ability to pay for education. The second factor was the establishment of median budgets per pupil based on the enrollment size of the school district. Equalization of property wealth, determined by multiplying district wealth (some legislatively defined combination of assessed property value and taxable income) by a local effort rate (the ratio of the district's budget per pupil to the norm budget per pupil) and multiplying again by a legislatively determined factor tied to legislative appropriation, has intended to place districts on a more equal footing in generating revenue for educational purposes. While the local effort rate has floated with the district's position above or below the median budget per pupil for its enrollment category, and while the legislatively determined factor has changed annually based on estimates of

FIGURE 1
1989-90 KANSAS SCHOOL DISTRICT EQUALIZATION ACT

$$\begin{matrix}\text{USD} \\ \text{General} \\ \text{Fund} \\ \text{Budget}\end{matrix} \quad \text{Minus} \quad \left[\left[\begin{matrix}\text{District} \\ \text{Wealth}^{1}\end{matrix} \times \text{LER}^{2} \right] - \text{PL } 874^{3,4} - \begin{matrix}\text{MV} \\ \text{Tax}^{4}\end{matrix} - \begin{matrix}\text{Rev} \\ \text{Bond} \\ \text{In-Lieu}^{4}\end{matrix} \right] = \text{Aid}$$

ESTIMATED 1989-90 BPP 'NORMS'

ENROLLMENT (E)	'NORM' BPP	ADJUSTMENTS
Under 200	$5116[a]	NONE
200-399	5116[b]	$1.645 (E-200)
400-1799	4787[c]	1.125 (E-400)
1800-9999	3212[d]	NONE
10000 and Over	3470[e]	NONE

a) Median of 200-399 enrollment category

b) Median of 200-399 enrollment category to median of 400-499 enrollment interval.

c) Median of 400-499 enrollment interval to median used for the fourth enrollment category.

d) Median in category, increased by 2.5 percent (1989-90 and 1990-91)

e) Median in category.

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1. Average of sum of assessed property valuation and resident taxable income in the USD for the two most recent years for which both such figures are available. For 1989-90 and 1990-91 "district wealth" is the average of the sum of (a) taxable income of resident individuals within the district for the two most recent years for which such data are available and (b) the adjusted valuation of the district for the 1988 tax year, modified by counting 50 percent of merchants and manufacturers inventory, livestock, and business machinery and equipment, and the assessed valuation of the district for the 1989 tax year.

2. $$\frac{\text{DISTRICT'S BUDGET PER PUPIL (BPP)}}{\text{BPP 'NORM' FOR THE DISTRICT'S ENROLLMENT CATEGORY}} \times 2.667\% \text{ (EST)}* = \text{LOCAL EFFORT RATE}$$

*Set by State Board of Education within the limits of appropriations for state school equalization act.

3. Applicable amount determined under federal rules and regulations based upon a ratio of USD operating revenues that are "equalized."

4. Amount of prior year's receipts from these sources credited to the USD general fund.

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state revenue which in turn has had the actual net effect of causing the local share to respond to state economic conditions, the effect of equalizing district wealth has simply been to provide less state aid to wealthy districts while assuring higher state aid to poorer districts. The second distinguishing factor of enrollment size in determining median budgets per pupil has been the state's method of recognizing certain cost differentials as seen in Table 1. Although complicated by arguments about the definition of district wealth and attendant problems of uneven property appraisal, these two factors have played an enormous role in state aid distribution, especially as enrollment categories had their basis in expectations of cost differentials. Because the enrollment categories have reflected only cost differences related to size, the effect of enrollment categories has been to drive budgets from an efficiency perspective. As a consequence, the importance of cost differentials has continued to grow since the enactment of the SDEA, with the original three categories further subdivided until at the present time there are five categories, with four recognizing higher costs associated with lower enrollments and one category for increased costs associated with the largest districts.

When the enrollment category medians combine with wealth deductions from the maximum general fund budget under applicable budget lids, the remaining portion of each district's budget is a presumably equalized state aid payment. That state aid payment is an expression of legislative intent. As the SDEA operates, its intent reflects the concepts of an adequate level of funding within an equitable distribution represented by (1) placing primary responsibility on the state for guaranteeing equal educational opportunity through a legislatively constructed formula intended to eliminate disparities between districts by the joint operation of enrollment category median expenditures and budget lids, (2) recognizing legitimate cost differentials through the enrollment categories, and (3) expressing the principle of equal educational opportunity through equalized budgets per pupil. The net sum of legislative intent affirms that equal educational opportunity is a critical state responsibility, notes that education requires sufficient resources to be meaningfully carried out, declares that the state has a responsibility to neutralize the effects of varying local wealth on educational equality, and implies that there are legitimate cost differences which adversely affect a district's ability to provide an equal educational opportunity if not legislatively redressed. These declarations place education among the most serious of all legislative responsibilities in the State of Kansas and unmistakeably link educational opportunity and outcomes to the statutory scheme for financing schools.

Under such conditions and intent, it is therefore asserted that the SDEA in Kansas must be rationally related to the state's goal of providing equal educational opportunity. It is further

TABLE 1
ENROLLMENT CATEGORIES
1973-1990

School Year	District Enrollment	Median Budget	Adjustment Factor
1973 Enrollment Categories			
I=	Under 400	$936	None
II=	400-1,299	936	-.23111 (E-400)
III=	Over 1300	728	None
1978 Enrollment Categories			
I=	Under 200	$2,062	None
II=	200-399	2,062	-1.280 x (Line 2-200)
III=	400-1299	1,806	-.400 x (Line 2-400)
IV=	Over 1300	1,448	None
1983 Enrollment Categories			
I=	Under 200	$3,258	None
II=	200-399	3,258	2.9 (E-200)
III=	400-1699	2,672	.4146 (E-400)
IV=	1700-9999	2,133	None
V=	Over 10000	2,221	None
1989 Enrollment Categories			
I=	Under 200	$5,116	None
II=	200-399	5,116	-1.645 (E-200)
III=	400-1799	4,787	-1.125 (E-400)
IV=	1800-9999	3,077	None
V=	Over 10000	3,329	None

consequently asserted for purposes of this analysis that in order for the state aid formula to be rational, it must not only recognize the state's full definition of equity but must also move beyond mere salutation by actually achieving that goal. It may then be finally asserted that if the formula has operated successfully, equity should be uniformly present across the distribution, and the enrollment categories should reflect the legitimate costs of providing equal educational opportunity. In other words, if the formula is to be held blameless it should be demonstrable beyond doubt that the SDEA has in fact eliminated the effect of wealth on education and that enrollment categories as a recognition of cost differentials in fact facilitate the intent of equalization. If the formula has failed to secure its aims, however, serious questions about the rationality of the formula should be raised when a statutory scheme has operated for seventeen years without achieving its own definition of equity. Because inequity may have a substantive effect on students' daily lives, in the present instance it is thus important to both consider whether the Kansas School District Equalization Act has successfully satisfied its intent, or whether it has had the negative effect on equal opportunity that the Turner district alleges. To draw such inferences, we turn first to statistical evaluation as a preface to conclusions about substantive effect.

FRAMEWORK FOR EVALUATING THE SDEA

The evaluation of equity requires measurement. Implicit in measurement is the selection of objects to be evaluated and the choice of methodologies by which measurement will occur. If the goal of equity is to eliminate disparities over time and to disengage wealth from opportunity, it is imperative to consider a design which longitudinally describes the performance of a school aid formula.

Three generally accepted principles of equity common to the research literature in school finance are resource accessibility, wealth neutrality, and equal tax yield.[8] These standards seek answers to critical questions about equity. The resource accessibility standard asks whether students have access to resources to appropriately meet their educational needs. The wealth neutrality standard then asks whether those resources are unacceptably related to local wealth and residence. The tax yield standard finally seeks equity for taxpayers and asks whether equal tax effort results in equal yield. Although subject to varying degrees of emphasis in different analyses, these broadbased standards provide a useful framework to assess performance of the Kansas statutory scheme both at the state level and within the individual enrollment categories.

These standards must be further defined in order to be measurable. If the finance formula implies state responsibility for the educational system, equity under the resource accessibility standard may be evaluated by looking at the degree of dispersion of wealth and budgets per pupil around some selected point. In the SDEA, the median of each enrollment category is implicitly defined by the state as educational adequacy and the focal point for equity intervention. On the other hand, there is sound logic for considering the distribution of scores around mean wealth and expenditures per pupil because the median and mean may be some distance apart, and it cannot be assured that one will approximate the other. If the mean and median are significantly apart, the median can be a false indicator of the true effect of wealth and budget per pupil distributions by overestimating or underestimating the actual price of education. Consequently, measures which capture dispersion about both the median and mean are more accurate[9] because separately they may fail to show that variance is too great to provide those in the lower expenditure range with adequate resources, i.e., variations which are irrationally related to the goal of equity. The use of both median and mean-based measures may therefore more sensitively point up resource accessibility violations. For those students who are below the median or mean expenditure for their enrollment category, and to some degree for those students who are above that measure, the critical question must eventually ask whether their condition is inappropriately linked to local wealth, or whether it is related to free choice or some other political reality.

Measurement of the link between wealth and resources then becomes the second element of equity and defines the wealth neutrality standard. If in examining the dispersion of resources it is found that wealth and budgets per pupil are positively correlated so that an increase or decrease in local wealth results in an increase or decrease in the budget per pupil, the wealth neutrality standard is violated because opportunity becomes a function of local wealth. If on the other hand it is argued that variations are related to a legitimate state purpose such as compensating for differences in certain costs, then tests for significant cost differentials between affected groups should bear out the notion that rational differences in fact exist. If those differences are not significant or are erratic or unrelated to relevant attributable costs, both the resource accessibility and wealth neutrality standards are violated because differences are illegitimate and may further be wealth-discriminatory. Therefore measures which capture the relationship between wealth and budgets per pupil and which assess differences between groups provide an effective means to evaluate the wealth neutrality of a school finance formula.[10] When inequality as defined by positive correlations between wealth and budget is present or when there are insignificant differences between groups who are nonetheless statutorily divided for state aid purposes, the formula becomes suspect and also leads to questions of taxpayer equity.

The final standard of taxpayer equity finishes the equity argument and seeks equal treatment by guaranteeing equal tax yield for equal effort. If one community can produce higher tax yield with less tax effort than another community which cannot reach that level without a higher tax rate and therefore an unequal tax burden, the taxpayer equity standard is violated and access to educational opportunity is barrier-laden unless the state aid formula restrictively intervenes to nullify any inequality. Consequently, observations regarding tax yield and tax effort are instructive regarding resource accessibility and wealth neutrality. While many complex issues cloud the taxpayer equity standard and make it largely unmeasurable with the present level of sophistication in research, for rough consideration statistical assessment is fortunately unnecessary because the wealth neutrality standard and simple observation are sufficient to speculate about whether taxpayer equity exists. Because of the child-centered emphasis of this analysis and because taxpayer equity can be considered as a de facto byproduct of the wealth neutrality standard, taxpayer equity is actively evaluated in this analysis only insofar as it casts suspicion on resource accessibility and wealth neutrality.

Statistical measurement is therefore a necessary condition to determining equity in school finance. By observing a state aid formula across a period of time, shifts in the values of such measures permit judgments about formula effects on the equity standards which must be achieved if a formula has operated successfully. These measures are likewise antecedant to stating the actual substantive effect of inequity on educational opportunity because they link inequality to statutory provisions. This analysis therefore next examines the performance of the SDEA generally and within and between enrollment categories as a preface to discussion of substantive effects on Turner USD 202.

LONGITUDINAL PERFORMANCE OF THE SDEA ON RESOURCE ACCESSIBILITY AND WEALTH NEUTRALITY

For the present analysis, the basic framework described earlier was utilized. The framework called for analyzing the SDEA over time under the standards of resource accessibility, wealth neutrality and, by inference taxpayer equity. Resource accessibility was measured first by range measures comparing wealth and budget per pupil and using the median as the point of analysis. These values are reported as the unrestricted and restricted ranges of budgets per pupil and wealth per pupil in Table 2. The total distribution was then examined for resource accessibility using mean-based measures which are reported in Tables 3-5. Table 3 reports means, standard deviations, coefficients of variation, and skewness of budgets per pupil for the state and all enrollment categories. Table 4 reports the same measures applied to wealth per pupil. Table 5 reports the results of tests for significant differences among and between the individual enrollment categories. These multiple measures captured the spread of wealth and budgets per pupil across the state and within enrollment categories in order to estimate the degree of resource equity.

Wealth neutrality was measured by Pearson correlation coefficients among multiple variables and by regression analysis. The correlation and regression values are reported in Table 6 as correlation coefficients and as variances explaining the contribution of each wealth variable to budgets per pupil. These measures captured both the size of potential inequities and the relationship between wealth and opportunity in the state and within enrollment categories. Finally, taxpayer equity was informally evaluated by observing the correlation of tax base to per pupil budgets and the estimates of contribution by wealth variables to budgets per pupil seen in the regression equations. In order to assess the formula longitudinally, range measures examined the years 1978-79, 1983-84, and 1988-89 to gain a fuller perspective on changes that may have affected equity. Statistical evaluation by means, correlations, and regression analysis used only the 1983-84 and 1988-89 school years, primarily because of incomplete data and because any present variability may also be assumed representative of earlier years. These procedures offered an assessment of the life of the SDEA over time intervals and formula changes.

Resource Accessibility

Table 2 contains the results of range measures on wealth and budgets per pupil. As the data indicate, the unrestricted range of wealth per pupil has historically been large and has widened over time. Wealth in 1978-79 varied by $258,268 per pupil between the highest and lowest wealth districts. By 1983-84, the gap had widened at the state level to $581,914 or an increase of 125%. By 1988-89 the gap had again increased by an additional 1% to a $588,983 disparity per pupil between the richest and poorest districts. At the state level, these data indicated that wealth disparity per pupil grew significantly over the ten year period, a factor which if unmitigated, would result in obvious and severe inequality. Although the SDEA was operational during this time and may be assumed to have intervened, it is still important to note the increasing gap in wealth disparity because such growth identifies a widening inequality between school districts which could have had a disequalizing effect if the formula failed to fully redress this basic inequality as some districts gained wealth and others lost wealth. This observation is further supported by the vastly different growth rates from 1978-83 and 1983-89, no doubt reflecting conditions in the economy.

TABLE 2
WEALTH AND BUDGET PER PUPIL RANGE MEASURES FOR THE RESOURCE ACCESSIBILITY STANDARD[1]

	N	UR WPP	% Chg	RR WPP	% Chg	UR BPP	% Chg	RR BPP	% Chg
1978-79									
State	306	$258268	--	$122661	--	$2546	--	$1282	--
0-199	25	209792	--	159887	--	2041	--	1886	--
200-399	62	169977	--	108148	--	1463	--	1078	--
400-1299	159	155144	--	39077	--	1440	--	775	--
1300+	60	106390	--	52583	--	691	--	319	--
1983-84									
State	304	$581914	125%	$268937	119%	$5199	104%	$2363	84%
0-199	36	503998	140%	467917	193%	3900	91%	2713	44%
200-399	68	406857	139%	274197	154%	2298	57%	1567	45%
400-1899	162	292660	N/C	195984	N/C	2186	N/C	861	N/C
1900-9999	34	88419	N/C	59797	N/C	727	N/C	482	N/C
10,000+	4	64715	N/C	8125	N/C	903	N/C	166	N/C
1988-89									
State	303	$588983	1%	$177689	-34%	$6020	16%	$3469	47%
0-199	35	515954	2%	165147	-65%	4711	21%	2898	7%
200-399	68	348353	-14%	190990	-30%	3050	33%	1664	6%
400-1899	156	564194	93%	218415	11%	2557	17%	1129	31%
1900-9999	39	71134	-20%	54912	-8%	1651	127%	836	73%
10,000+	5	104334	61%	36255	346%	495	-45%	495	198%

[1] Measures of dispersion of wealth and general fund budgets per pupil.

N=	Number of districts.
UR WPP=	Unrestricted range of wealth per pupil.
% Chg=	Percent change between the present and prior time periods.
RR WPP=	Restricted range of wealth per pupil.
UR BPP=	Unrestricted range of budget per pupil.
RR BPP=	Restricted range of budget per pupil.
N/C=	Noncomparable data.

Performance on the unrestricted range of wealth per pupil within the enrollment categories was more problematic. First, changes in the number of enrollment categories from 1978-79 to 1983-84 made comparisons in the three largest categories impossible because of both a lack of direct comparability and because of the attendant shifts which realigned districts into different categories with the addition of the fifth enrollment category. The first two enrollment categories were comparable, however, and the years from 1978-79 to 1983-84 saw the gap between unrestricted wealth per pupil increase at a rate roughly equal to that of the state (125%), as Category I increased by 140% and Category II by 139%. From 1983-84 to 1988-89, however, significant changes occurred as enrollment categories moved away from the general state direction. Wealth disparity widened in extremely unequal amounts in the first, third and fifth categories while improving in the second and fourth enrollment categories. The greatest increases in disparity of wealth per pupil were concentrated in Category III (93%) and Category V (61%). Categories II and IV saw wealth disparity decrease by -14% and -20% respectively. While the benefit of the unrestricted range is primarily limited to indicating extreme variations of wealth factors and is incapable of determining whether the formula successfully intervened, these data are helpful because they clearly indicate that wealth variations have been sizeable and have increased over time, that wealth has not concentrated in any single class of districts, that the effects have been unevenly distributed, that unmitigated disparities would result in highly differential educational opportunity, and that the use of enrollment categories has no relationship to wealth factors.

The restricted range measure was also applied to wealth per pupil and offered both a more conservative view of wealth trends and an indication of where wealth inequalities are concentrated. By ignoring those districts at the extreme top 5% and bottom 5% of the scale of wealth per pupil, the restricted range at the state level revealed that from 1978-79 to 1983-84 wealth disparity grew from $122,661 to $268,937 (119%). During the period 1983-84 to 1988-89, however, the restricted range of wealth per pupil dropped from $268,937 to $117,772 (-34%). When compared to the earlier data on unrestricted wealth, this data indicated that disparity in wealth per pupil at the 5th-95th percentile had declined. Such a result is significant because although the state unrestricted range continued to increase in wealth per pupil variation, the restricted range revealed that increased wealth was not widely shared and that the differential was in fact located in only a few districts holding extremely high or low wealth. In other words, the bulk of districts came closer together as indicated by the decline in restricted variation (-34%) while increases/decreases in the wealth of a few districts in the state significantly increased wealth variation in the distribution. While these observations are again not sufficient to conclude that wealth inequality had an identifiable impact on educational opportunity, they do indicate that the notion of improving wealth disparity is not totally accurate because while several districts were able to significantly expand accessible resource bases, other districts may have had their bases reduced.

Performance within enrollment categories on the restricted range provided additional insight into the wealth distribution. From 1978-83 inequity as defined by disparity in wealth per pupil grew significantly in the first and second enrollment categories, as Category I and Category II increased in disparity by 193% and 154% respectively. From 1983-88, however, a different picture emerged as all enrollment categories except III and V experienced narrowing wealth disparity. In Category III a net real increase of 11% in wealth per pupil disparity was noted, while in Category V the restricted range appeared to increase by 346%.[11] Because of problems in calculating a restricted range with only five fifth enrollment category districts, however, a more appropriate estimation of net real increase in Category V was provided by the unrestricted range which yielded a 61% increase in wealth disparity for the same time period. The remainder of enrollment categories reduced wealth disparity by unequal amounts, with Categories I and II improving by -65% and -30% respectively, and with a modest reduction in Category IV of -8%. These factors suggest that enrollment categories have not experienced equal fortunes and that there have been uneven shifts in wealth per pupil. Unless the formula has successfully intervened, these changes would be certain to impact educational expenditures in parallel as districts shifted in relative wealth positions.

Wealth measures are important, however, only insofar as they bear on budgets per pupil by either facilitating or hindering the ability to fund expenditures and by indicating the relative position of districts to one another in resource accessibility. Because wealth measures are thus unable to stand alone, it was necessary to compare the range of wealth per pupil to equivalent measures of budgets per pupil in order to make initial assessments of the resource accessibility standard.

The unrestricted range of budgets per pupil at the state level from 1978-83 roughly paralleled changes in unrestricted wealth per pupil. As the 1978-79 unrestricted range in wealth disparity increased by 125%, the unrestricted range in budgets per pupil increased from $2546 in 1978 to $5199 in 1983 (104%). From 1983-88 the unrestricted range in wealth per pupil increased again (1%), while the unrestricted range in budget per pupil increased to $6020 (16%). Under these conditions, disparity in wealth per pupil from 1978-83 increased faster than the disparity in budget per pupil, but was reversed from 1983-88 with disparity in budgets per pupil growing faster than wealth disparities.

Such a situation would indicate that the disparity in budgets per pupil has responded unfavorably in recent years to changes in wealth. While it is impossible at this point to ascertain whether higher wealth per pupil drives higher budgets per pupil, the apparently associated undesirable movement of wealth and budget per pupil across the state raises equity concerns related to the lower end of the distribution because it might reasonably be feared that the observed changes were the result of higher wealth districts increasing budgets per pupil faster than low wealth districts--a situation which suggests reward for effort among wealthy districts with poorer districts falling behind.

Unrestricted range comparisons of budgets per pupil within enrollment categories were also made. The pattern from 1978-83 showed an increase in wealth disparity, accompanied by a more modest but significant increase in disparity of budgets per pupil. In these years, Category I saw disparity in wealth per pupil (140%) grow faster than disparity in budget per pupil (91%), while Category II experienced a more dramatic pattern with wealth per pupil (139%) increasing at a much faster rate than budget per pupil (57%). Experience from 1983-88 was again considerably different, as Categories II (-14%) and IV (-20%) saw greater equity in wealth per pupil, but had greater disparity in budgets per pupil in Category II (33%) and Category IV (127%). At the same time Category I saw only a small increase (2%) in disparity of wealth per pupil, but contained a sizeable increase (21%) in disparity of per-pupil budgets. Category III, however, reflected the opposite trend with a sizeable increase in wealth disparity (93%) accompanied by a more moderate increase in budget per pupil disparity (17%). Finally, Category V saw a significant equity increase in wealth disparity per pupil (61%), but was accompanied by a reduction (-45%) in disparity of per-pupil budgets. Again, these data indicate a highly uneven pattern in the effect and direction of wealth and budgets which in some instances suggest potentially unfavorable movement.

Restricted range measures on budgets per pupil were also calculated for the state, and from 1978-83 they again roughly paralleled the restricted range in wealth. From 1978-79 to 1983-84 the restricted range of budgets per pupil increased from $1282 to $2363 (84%). During the period 1983-88 the range in budgets per pupil increased again to $3469 (47%). In comparing changes in the restricted range of wealth per pupil with those of budgets per pupil, restricted wealth per pupil from 1978-83 increased faster (119%) than restricted budgets per pupil (84%). For the second time period 1983-88, however, a decrease in restricted wealth per pupil (-34%) was accompanied by an increase in budget per pupil disparity (47%). This again paralleled the unrestricted range performance, indicating a possibly uneasy relationship between wealth and budget per pupil which grew progressively worse in later years as expenditure disparities among districts increased. While more than one scenario could be hypothesized, a state aid explanation may be especially relevant. Such a situation could be explained in that given the relatively constant state aid contribution experienced in Kansas as a proportion to total budgets over time, increased disparity in budgets per pupil could result from higher wealth districts generating greater dollar increases in budgets per pupil than low wealth districts with the same effort, even under the lower budget lids for districts above the median. Although all districts had their wealth equalized by formula, a slightly higher effort in wealthy districts would generate more budget per pupil, even though the restricted wealth per pupil disparity had closed because those districts creating the disparity probably lay above the 95th percentile of wealth per pupil.

Within enrollment categories, changes in restricted range budgets per pupil also exhibited uneven experience. The pattern of increased disparity in unrestricted range was sustained, as generally parallel restricted range disparities in enrollment category budgets per pupil were present from 1973-78. Category I saw a large increase (193%) in restricted wealth per pupil, accompanied by a more moderate increase (44%) in restricted budget per pupil. Category II performance was more moderate, with an increase in restricted wealth (154%) accompanied by an increase (45%) in restricted budget per pupil. From 1983-88, however, the potential inequity of opposite trends emerged again. Category I saw a small increase in restricted range disparity (7%) of budget per pupil but contained a sizeable decrease (-65%) in disparity of restricted wealth per pupil. Greater equity in wealth per pupil also occurred in Categories II (-30%) and IV (-8%), but these categories experienced a widening in budgets per pupil of 6% and 73% respectively. Only Categories III and V saw increases in wealth and budget per pupil disparity in the same direction, as Category III saw a wealth disparity increase (11%) accompanied by an increase (31%) in budget per pupil, and Category V saw a spurious effect of restricted range in wealth per pupil (346%) and budget per pupil (198%).[12]

While increased disparity is generally undesirable, these movements are especially disturbing because they appear to relate wealth and budgets per pupil and because they may reflect on the operation of budget lids and enrollment category medians. Logic and the SDEA argue that as wealth disparity narrows, budgets per pupil should also narrow as the combined effect of decreased wealth disparity and higher budget lids in below-median districts act to close the expenditure gap. From the foregoing data, however, actual experience would appear to refute this theory, suggesting that medians and budget lids do not reduce disparity and may actually perpetuate inequity because wealthy districts exerting slightly higher tax effort can generate additional revenues and expand the budget per pupil disparity by moving farther above the median while low-wealth districts within the same category are either forced to exert disproportionate effort to keep pace or fall farther behind. Under median-related budget lids this is demonstrably true, as a high-spending district with a lower lid can still generate more dollars than a low-spending district with a higher lid. At the same time, increased wealth disparity obviously can result in increased budget disparity. Under such conditions, it is virtually impossible for districts below the median to close the gap, particularly when budget lids are only minimally apart as they have been in recent years. From 1983-88, this phenomenon was sharply evident, as in the fourth enrollment category where the smallest decrease in the restricted range of wealth per pupil (-8%) was accompanied by the largest increase (73%) in restricted budget per pupil. Under these conditions, wealthy districts under lower lids were still able to pull well above the median and thus increase budget per pupil disparity, while on the surface the narrowing of wealth disparity gave the appearance of increased equity. From this perspective, the range measures may have revealed a potential dual inequity related to the SDEA's use of median budget authority because lids do not prevent increased budget per pupil disparity regardless of whether wealth disparity increases or decreases.

Although additional analysis is required to more fully evaluate resource accessibility under the SDEA, the median-based range measures allow for initial summary. First, wealth varies substantially within the state and within enrollment categories. Second, even when wealth extremes are removed, those variations remain at significant levels. Third, per-pupil budgets also vary widely and often in seeming response to local wealth. Fourth, these variations appear more parallel to the economic fortune of the state than to any formulaic intent because, despite the intended inverse relationship of the SDEA on wealth and aid, the two critical indicators of wealth and budgets appear to remain positively linked.[13] Fifth, in the period 1983-88 the fourth enrollment category experienced the greatest potential inequity as it held the largest increase in disparity of per-pupil budgets to wealth per pupil under both the unrestricted and restricted ranges. Finally, this phenomenon is apparently related to the use of enrollment category medians in determining budgets per pupil because neither medians nor lids automatically lead to increased equity and in fact may exacerbate disparities as wealthy districts may still pull ahead of poorer districts. From these observations, it would appear that school districts may be subject to considerable variability conditioned by economic fortune and enrollment category membership--factors which if unmitigated are inimical to a rational relationship to the intent of equalization and equal opportunity.

While large variations on resource measures naturally raise questions, they are still insufficient to conclude that inequity is the predominant characteristic of a school finance scheme. They do, however, state a sufficient concern to justify further thought because they may imply formula-based problems with both resource accessibility and ultimately wealth neutrality. In the case of Kansas, the variations were of such significance as to require further analysis. Because the earlier data indicated the most unusual behavior in Category IV which in turn may assist in evaluating the Turner lawsuit, further inquiry into the distribution of resources and wealth was conducted.

To further understand the relationship between wealth and budgets per pupil and because there may be legitimate questions regarding the appropriateness of the SDEA's use of the median as the single point of departure in defining adequacy and equity in Kansas, additional mean-based calculations were made for both the state and the enrollment categories. Because it is necessary under this analysis' definition of equity to examine resource accessibility over time, data for the years 1983-84 and 1988-89 were tested.[14] Each of the variables of budget per pupil, wealth per pupil, adjusted valuation per pupil, and taxable income per pupil were assessed. Again for brevity and because we are most interested in differences in budgets per pupil and because the later discussion under wealth neutrality will both descriptively correlate wealth and budgets and infer by regression the effect of each wealth variable on budgets, the results reported in Table 3 as means, standard deviations, coefficients of variation, and skewness[15] focus only on budgets per pupil. Appendix A, however, contains the breakdown of each statistic on the state and the enrollment categories for each variable.

Although the SDEA is based on the median as the best measure of central tendency because of its stability, the mean also provides a useful picture. The median is indifferent to the magnitude of differences in wealth or budget per pupil in that it only finds the middle-most district. The mean, however, is sensitive to the size of these variables. While these measures' strengths lie in their definitions, their weaknesses are also therein identified. Consequently, the use of both measures in tandem is most instructive, particularly if a distribution is not normally shaped. In a normal distribution the mean and median may be expected to be somewhat parallel, but if wealth or budgets are significantly unequal, these measures may grow apart. By using mean-based measures in addition to the median-based ranges described earlier, it was possible to describe wealth and budgets per pupil in terms of standard deviations from the mean in order to indicate whether wealth and budgets per pupil are normally distributed, as coefficients of variation which reduce the magnitude of variance to a single score for comparison purposes, and in terms of skewness which also describes the relationship between the mean and median of wealth and budgets with the benefit of indicating in which direction the distribution may be skewed. These measures were especially helpful in determining whether the state's reliance on the median and the touted inverse relationship of aid to wealth are sufficient to describe a full definition of equity in the state of Kansas.

TABLE 3
DESCRIPTIVE MEASURES ON BUDGET PER PUPIL FOR THE STATE AND ENROLLMENT CATEGORIES RESOURCE ACCESSIBILITY STANDARD

	Mean	Standard Deviation	Coefficient of Variation	Skewness
1983-84				
State	$3197.23	$713.09	.223	1.46
Category I	4485.00	820.33	.1829	.37
Category II	3588.62	388.81	.1083	.59
Category III	2943.81	274.77	.0933	1.11
Category IV	2335.56	148.27	.0634	2.06
Category V	2541.52	95.69	.0377	.13
1988-89				
State	$4388.09	$980.59	.2235	1.03
Category I	6104.89	1045.76	.1713	.08
Category II	4891.90	550.19	.1125	.75
Category III	4127.75	447.89	.1085	-.37
Category IV	3070.53	225.27	.0734	2.28
Category V	3495.48	253.09	.0724	.41

The mean budget per pupil grew statewide from $3197 to $4388 (37%) from 1983-88. The coefficient of variation remained steady at .22 and skewness shifted downward slightly from 1.46 to 1.03, indicating generally decreased disparity between the mean and median budgets per pupil. Varying results, however, were obtained in the analysis of enrollment categories. In Category I measures generally indicated a narrowing of the difference between the mean and median budgets per pupil as skewness dropped from .37 to .08. In Category II the mean moved higher than the median, as skewness rose from .59 to .75 indicating higher spending than was reflected by the formula's use of the median as the measure of fiscal equity and adequacy. In contrast, Category III saw an opposite shift with the mean expenditure falling below the median as skewness dropped from 1.11 to -.37, indicating budgets per pupil increasing slower than either the wealth of districts or the median's expectation. It was in Categories IV and V, however, where indicators of decreasing equity on resource accessibility were most evident. Category IV had an increase (31%) in the mean budget per pupil from $2335 to $3070, resulting in a increase (16%) in the coefficient of variation from .0634 to .0734, and a shift in skewness from 2.06 to 2.28. In Category V, the mean budget per pupil increased 38% from $2541 to $3495, and was accompanied by a 92% increase in the coefficient of variation from .038 to .072 and a shift in skewness to .41 above the median. These movements are significant to budgets per pupil and possible wealth relationships, both by their comparative magnitude and their ability to demonstrate a basic weakness of the median as the single best measure of equity in the SDEA.

Although it initially appears that Category V experienced greater inequity on mean-based measures, Category IV actually contained the greatest disparities under the SDEA which provides state aid based solely on the median expenditure per pupil. This observation occurs because the direction and magnitude of skewness is the most important indicator. In Category V, the mean was skewed only .41 above the median while in Category IV the mean was skewed 2.28, more than five times greater than the skewness for the fifth category. The significance of skewness is a clear indicator that the median does not accurately predict actual expenditure patterns. In other words, skewness of the mean of actual budgets per pupil above the median observes that the SDEA with its singular dependence on the median does not reflect actual budgets per pupil for equalization purposes in the fourth category in the way the State may contend it does because the mean and median see very different realities. Although the median unquestionably finds the middle of the expenditure range, the mean in this instance argues that districts need to spend significantly more than the median compensates. But because the median is the sole starting point for state aid, under these conditions the median may necessarily undercompensate actual needs--a condition which reflects most harshly on adequate and equitable funding for fourth enrollment category districts because the distribution's skewness is significantly unequal.

For poorer districts in the fourth enrollment category, a significant dilemma thus arises. First, districts below or close to the median cannot avoid disadvantage because the state aid formula neither reflects the true expenditure distribution nor sets the median high enough to provide adequate levels of funding. Consequently, these districts are tied to an already low median which may further not be the best measure of adequate funding. Second, if higher expenditure districts in the category increase budgets per pupil faster than low expenditure districts, further growth in disparity of budgets per pupil is inevitable in a skewed distribution, even though the median may remain the same or increase slightly. The net effect is that poor districts may be held near or below the median while wealthy districts are able to pull farther above the median. Budget lids do not prevent this even though the theory is to allow lower districts a greater increase because the practical effect is that a high-spending district subject to a small lid can raise more dollars than a low-spending district subject to a larger lid--a condition which is cumulative over time. In other words, poor fourth enrollment category districts may have a difficult time generating enough revenue because aid is based on a low median, and they further may be constrained from moving toward or above the median. In contrast to other categories, the mean-based measures indicate that adequate and equitable funding of budgets per pupil in the fourth enrollment category may be especially constrained because the median-based SDEA does not accurately predict expenditures or base state aid on a meaningful measure of dispersion.

Because budgets per pupil will eventually be inferentially linked to wealth in this analysis, the same mean-based statistics were also used to assess wealth per pupil. Again, the analysis considered the state and all enrollment categories. The results are reported in Table 4.

Between the years 1983-89, mean wealth per pupil decreased from $142,919 to $113,682 (-20.4%) for the state as a whole. The coefficient of variation decreased from .64 to .595, but skewness increased from 1.75 to 3.36. Thus although available wealth per pupil in the state may have declined, wealth in districts above the median increased faster than in districts below the median because the shift in skewness to the right indicated that the wealthiest districts were pulling away. This behavior was consistent with the earlier examination of budgets per pupil and appears to relate wealth to budgets because the movements seem to be in tandem. Because the SDEA only recognizes the median in formula computations, the earlier observation about unequal behaviors of the mean and median in relation to one another and the apparent inability of the median to accurately reflect an adequate level of resources resurfaces again.

TABLE 4
DESCRIPTIVE MEASURES ON WEALTH PER PUPIL FOR THE STATE AND ENROLLMENT CATEGORIES RESOURCE ACCESSIBILITY STANDARD

	Mean	Standard Deviation	Coefficient of Variation	Skewness
1983-84				
State	$142919	$91851	.64	1.75
Category I	284364	113361	.40	1.32
Category II	176438	82217	.47	.94
Category III	113838	56836	.50	1.14
Category IV	70891	17550	.247	.17
Category V	90100	27133	.0312	-.54
1988-89				
State	$113682	$67655	.595	3.36
Category I	186836	85656	.458	3.16
Category II	131006	58709	.449	1.95
Category III	99331	61291	.617	4.69
Category IV	74495	15344	.206	-.08
Category V	109516	40354	.368	.60

The enrollment categories once again exhibited different behavior. Although mean wealth per pupil in Category I decreased from $284,364 to $186,836 (-34%), the coefficient of variation increased from .40 to .458 and skewness increased from 1.32 to 3.16, again possibly reflecting the wealthiest districts rising farther above the median. Category II showed similar behavior as mean wealth declined from $176,438 to $131,006 (-26%) and the coefficient of variation dropped from .47 to .449. Skewness increased, however, from 1.14 to 1.95, again indicating a few districts pulling above the median. Category III performance was even more noticeable, as mean wealth per pupil dropped from $113,838 to $99,331 (-15%) but with a change in the coefficient of variation from .50 to .617 and skewness increasing from 1.14 to 4.69. These data on wealth per pupil are generally consistent with the performance of mean budgets per pupil seen earlier by indicating an increasing difference in the mean to the right of the median in the distribution.

Categories IV and V, however, again showed the most remarkable change. Even though there was an increase in Category IV wealth per pupil from $70,891 in 1983-84 to $74,495 (5%) in 1988-89 which indicated that the wealth of some districts was increasing, mean wealth per pupil in Category IV was well below the state mean in both years. While the coefficient of variation in the fourth category decreased slightly (.247 to .206) over the time period, there was a dramatic change in skewness to the negative direction (.17 to -.08). In other words, in this time the fourth category mean wealth per pupil moved below the median. While the actual magnitude of the shift was not great and more closely resembled a normal curve than was true for the other enrollment categories, the shift in skewness to the left of the median was significant because the presence of the mean below the median indicated that a majority of districts in this enrollment group were below the category's median wealth per pupil. For poorer districts, this becomes important for two reasons. First, mean wealth below the category median indicated an increasing majority of districts whose wealth was dropping in comparison to their peers and possibly other enrollment categories. Further, the earlier examination noted that the fourth category was remarkable because it apparently contained a few high spending districts while its median also tended to underestimate actual expenditures. Under these conditions, poorer fourth category districts could be doubly disadvantaged because they would be poorer than the median would estimate, which could in turn result in underfunding. Second, by comparison Category V was the reverse image. While mean wealth per pupil in Category V increased from $90,100 in 1983-84 to $109,516 (21.5%) in 1988-89, there was also an increase in the coefficient of variation (.3012 to .368) and a dramatic shift in direction of skewness (-.54 to .60) to the right of the median. In other words, mean wealth in

Category V pulled above the median which already had a higher median budget per pupil, while mean wealth in Category IV dropped below the median and was accompanied by a potentially underfunded median budget per pupil. These inverted mean and median behaviors hold significant implications because they are highly uneven and because they imply significantly different funding levels for fourth and fifth category districts in relation to potential educational needs.

The net outcome of positive wealth skewness in the fifth enrollment category and negative wealth skewness in the fourth category is potentially one of differential effect. In other words, as average wealth per pupil in the fifth category moved farther above the median while fourth category districts' wealth moved below the median, negative implications for adequate and equitable funding can be seen. These events become more significant when it is remembered that budgets per pupil for the fourth category were skewed above the median. The consequence becomes that while a majority of fourth category districts have wealth below the median, they apparently must exert additional tax effort in order to spend above the median budget per pupil of the enrollment category. In contrast, fifth category districts are able to spend more dollars while accessing a higher median budget per pupil and higher wealth per pupil--factors which result in more revenue under less tax effort. These factors suggest that disparities in wealth, budgets, and skewness may change in response to one another. Under these conditions, poorer fourth category districts may be especially disadvantaged in that they may have a difficult time in funding educational expenditures because they must exert more effort to spend more while receiving aid based on a lower median that underfunds their actual costs, especially in comparison to fifth category districts which have a higher median budget per pupil and may also have greater wealth.

Median-based and mean-based measures thus allow for further intermediate summary about both wealth and budgets per pupil. First, there is reason to believe that the SDEA's reliance on the median as the single descriptor of equity is an oversimplified view of formula effects because the formula has held fourth category districts to a lower median budget per pupil which is not reflected in actual mean behaviors. Second, it appears that the SDEA's reliance on the median as the single predictor of adequacy is unevenly accurate because medians both underestimate and overestimate actual expenditures and wealth patterns. These issues thus raise the question of uniformity and sufficiency of the SDEA. Third, for Category IV the lower median budget per pupil for state aid purposes results in the least equitable performance in the distribution and is further exacerbated by potentially underestimating the cost of education because the skewness indicates that districts apparently must spend more than their category median rewards. Fourth, because the median budget per pupil fails to approximate the mean by the greatest amount in Category IV, it can be asserted that the fourth enrollment category median used in state aid calculation may be the most inaccurate of all medians in reflecting the true costs of education. These issues raise the question of discrimination whereby poorer fourth category districts may be prevented from appropriate access to resources to meet their needs. Fifth and finally, the state's reliance on the median as its indicator of adequacy and equity may be in error because it does not appear to measure the most significant behaviors in the distribution. Under these conditions the effect of fourth and fifth category medians may be one of differential treatment unless the statutory division can be related to genuinely legitimate cost variations.

In sum, the SDEA may have only successfully redressed disparity in an uneven fashion. As the data relate to Turner's lawsuit, these factors may hold negative implications when contiguous districts who are members of different enrollment categories are initially unequal and must further compete in a geographic marketplace. Because a low wealth district in Category IV may be unable to generate equal revenue as a combined function of low wealth and a lower category median budget per pupil, it may be unable to compete with a higher wealth Category V district which has both the benefit of more wealth and a higher median budget per pupil. If these districts share similar market costs, the fifth category district may be advantaged unless there is a genuinely demonstrable reason why they require a higher median. For low wealth fourth category districts like Turner in competition with higher wealth fifth category districts who also have a higher median budget per pupil and who also tend to pull the mean budget and wealth per pupil above the median used for calculating state aid, a clear disadvantage could be present because the wealthier districts could hold a significant market edge. Under such conditions, it is possible to assert that the SDEA may have failed to equalize educational opportunity in poorer districts like Turner because they are disadvantaged by membership in an enrollment category whose operation may be driven by efficiency rather than by educational needs such as market costs. It would therefore appear that the greatest disadvantage a district could experience would be to combine low wealth and fourth enrollment category membership in a high cost marketplace.

The assertion that enrollment categories account for little beyond the questionable contribution of efficiency to equal educational opportunity is critical to the outcome of the resource accessibility argument in the Turner lawsuit because it reasons that the truly important costs in an equitable and adequate funding scheme are irrationally ignored. In other words, in a rational scheme an equalization formula would intentionally contribute to equalized opportunity, rather than targeting some other goal, i.e., efficiency. Because the argument is critical, it is important to finally confirm it by additional tests.

On the assumption that it will be asserted that enrollment categories were not intended to reflect differences in the costs of education other than efficiencies of size, two points of logic should be posited. First, that argument is flawed because the fifth category was implemented to account for costs attributable to urban disadvantages other than size. Second, if the costs of the fifth category are indeed greater, either because of size or urban conditions, it follows that actual differences should demonstrably exist in the expenditures of fourth and fifth category districts. Under such conditions, tests for significant differences in median budgets per pupil should show that there are in fact significant differences in actual costs between these enrollment categories. Simply put, if fifth enrollment category districts deserve a higher median budget per pupil because their needs are greater than fourth enrollment category districts, then their expenditures per pupil should necessarily be greater. If on the other hand no statistically significant differences are found, then the higher median of the fifth category could be seen as an unreasonable discrimination between the fourth and fifth enrollment categories. This assertion can be confirmed using analysis of variance and post-hoc tests to indicate relationships between the budgets per pupil for each enrollment category in the years 1983-84 and 1988-89. The results of these analyses are summarized in Table 5 and reported fully in Appendix B.

As the results in Table 5 show, the enrollment categories fail the test for significant differences in both time periods. In 1983-84, no significant difference could be found between Categories III and V and between Categories IV and V. Identical results were derived for 1988-89. This finding is critical because it supports Turner's assertion that the legislative justification for a higher median budget per pupil for Category V may be unreasonable and arbitrary. In fact, the evidence argues that there are no differences between Categories III and V and Categories IV and V. In other words, it is assertable that the costs of those districts are in fact similar and that the use of different medians per pupil is unjustified by any demonstrable relationship to either costs or equal educational opportunity. By this logic, enrollment categories are not effective or rational because they neither accurately reflect the efficiencies of size or take into account whatever costs actually make the fourth and fifth categories more similar than different.[16] In fact, on the basis of tests for significant differences it may be asserted that the fourth enrollment category is the recipient of disparate and unequal treatment because it spends as much as fifth category districts without the attendant state assistance enjoyed by the fifth enrollment category.

TABLE 5
COMPARISON OF MEAN BUDGET PER PUPIL BY ENROLLMENT CATEGORY FOR 1983-84 and 1988-89 RESOURCE ACCESSIBILITY STANDARD

1983-84
Full model 5 groups f=172.46 p=.0001

Post Hoc Test Results

Category	Mean Difference	Scheffe test
1 vs 2	$896.38	30.35*
1 vs 3	1541.19	112.25*
1 vs 4	2149.44	129.62*
1 vs 5	1943.48	21.82*
2 vs 3	644.81	31.95*
2 vs 4	1253.06	57.10*
2 vs 5	1047.10	6.65*
3 vs 4	608.25	16.68*
3 vs 5	402.29	1.01
4 vs 5	-205.97	.24

1988-89
Full model 5 groups f=163.12 p=.0001

Post Hoc Test Results

Category	Mean Difference	Scheffe test
1 vs 2	$1212.99	27.82*
1 vs 3	1997.15	91.65*
1 vs 4	3034.06	135.51*
1 vs 5	2609.41	24.38*
2 vs 3	764.15	22.72*
2 vs 4	1821.37	65.05*
2 vs 5	1396.41	7.43*
3 vs 4	1057.22	27.42*
3 vs 5	632.26	1.59
4 vs 5	-424.96	.65

* Significant at 0.95

The examination of resource accessibility in the framework of this analysis is therefore completed. The bottom line, as multiply expressed through median-based range measures of wealth and budgets per pupil, the mean-based measures comparing the performance of the mean to the median, and the tests for significant differences, is that equity as defined by the resource accessibility standard and expressed by legislative intent through the statutory scheme cannot be consistently demonstrated in the SDEA, and that enrollment categories do not function to facilitate the state's responsibility to provide equal educational opportunity under an equalization scheme. From these observations, the consultants concur that resource equity is violated by the absence of a uniform effect of the SDEA and because the statutory difference in funding between the fourth and fifth enrollment categories does not further any rational relationship to equal educational opportunity.

Wealth Neutrality

As stated at the outset, three conditions of equity are desired in this analysis if the formula is to be judged equitable and rational. The formula has failed the first standard of resource accessibility by failing to account for educational costs according to needs and by basing the enrollment category medians for the fourth and fifth categories on illegitimate differences. The second standard of wealth neutrality follows closely, requiring that the relationship between wealth and budgets be at least neutral if not inverse covariants. As a somewhat natural byproduct of wealth neutrality, taxpayer equity can also be estimated. While it should be clearly stated that failure to achieve any of these standards is sufficient to cast deep shadows on a formula's credibility, it is nonetheless desirable to continue in this analysis by assessing wealth neutrality in order to more fully judge the relationship between wealth and educational opportunity in the Turner school district.

As it is observable on its face that state aid under the SDEA is inversely related to local wealth, the test for wealth neutrality need not be concerned with disputing the state's anticipated argument that the formula does in fact intervene in residence-related opportunity. Unfortunately, however, the extent of such redress is not as easily observed. For purposes of this analysis, it is thus necessary to consider how effectively the link between wealth and budgets per pupil is broken by the SDEA and whether the effects of intervention are uniformly distributed across all enrollment categories. If the formula has successfully operated to eliminate residence-related educational opportunity, the link between budgets and local wealth should be absent throughout the distribution. If the SDEA has failed to break the link, the presence of statistically significant relationships between budgets and wealth at any level would indicate that the wealth neutrality standard (and consequently taxpayer equity) is violated. Fortunately because of the extensive analysis on resource accessibility and because it is relatively simpler to observe wealth neutrality, this segment of the evaluation of the SDEA can be much briefer.

For our purposes, two procedures were utilized to assess wealth neutrality in the state and in each enrollment category on the variables used throughout this analysis. Consequently, tests for wealth neutrality were run on wealth per pupil, budgets per pupil, adjusted valuation per pupil, and taxable income per pupil for the school years 1983-84 and 1988-89. Pearson correlation coefficients and regression equations were used to assess the relationship between variables and to predict the contribution of each variable to observed variance. All measures cited were correlated and also included in the regression equations. The full results are shown in the detail tables and graphs found in Appendix C. In the interest of brevity and because adjusted valuation and taxable income effectively combine under the SDEA to form the definition of wealth, we have limited our discussion below to the variables of wealth and budget per pupil reported as correlation coefficients and variance estimates in Table 6.

The data in Table 6 indicate that in most instances there is still a positive relationship between budget per pupil and wealth at the state level and within enrollment categories. The link between budgets per pupil and taxable income is generally the weakest, with adjusted assessed valuation per pupil having the strongest correlation, and followed closely by total wealth per pupil. The direction and strength of these variables is predictable in that the sum of adjusted assessed valuation and taxable income comprise the definition of total wealth, with income representing only a small part of the state aid formula for most districts.[17] This pattern of positive association generally holds true from 1983-84 to 1988-89 and across the enrollment categories, with the added observation that the correlations lessened (although still statistically significant) from 1983-84 to 1988-89. The one exception is once again in Category IV where taxable income is negatively related to budgets per pupil and where a very low correlation between budgets and wealth per pupil is observed. These observations would tend to indicate a moderate and widespread improvement in wealth neutrality across the state and across all enrollment categories, with equity improvement best achieved in Category IV.

Although it is obviously true that the correlations in Category IV are weaker than in the other categories, quick conclusions about greater equity for fourth category districts may be in error. Wealth neutrality has undisputedly improved to a moderate degree in the distribution, but for Category IV the

TABLE 6
VARIANCE ESTIMATES
PEARSON CORRELATION COEFFICIENTS FOR THE PER-PUPIL MEASURES OF WEALTH, BUDGET, ADJUSTED VALUATION, AND TAXABLE INCOME
WEALTH NEUTRALITY STANDARD

Variance estimate (r^2) in parentheses

		1983-84	
	AJVPP	TIPP	WPP
Budget per pupil to:			
State	.81 (.65)	.17 (.03)	.81 (.65)
Category I	.70 (.49)	.36 (.13)	.71 (.51)
Category II	.56 (.32)	.37 (.14)	.57 (.32)
Category III	.63 (.41)	.27 (.07)	.64 (.41)
Category IV	.02 (.0029)	-.32 (.11)	-.08 (.01)
Category V	.79 (.62)	.87 (.76)	.82 (.67)

		1988-89	
	AJVPP	TIPP	WPP
Budget per pupil to:			
State	.59 (.34)	.08 (.01)	.58 (.34)
Category I	.56 (.32)	.38 (.15)	.57 (.32)
Category II	.51 (.36)	.31 (.11)	.53 (.28)
Category III	.30 (.09)	.03 (.00957)	.30 (.09)
Category IV	.20 (.04)	-.26 (.07)	.05 (.0026)
Category V	.37 (.14)	.27 (.07)	.33 (.11)

AJVPP= adjusted valuation per pupil
TIPP= taxable income per pupil
WPP= the sum of AJVPP and TIPP

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data suggest equity is in fact declining. On closer examination, it can be seen that in Categories I, II, III, and V the correlation between budgets per pupil and local wealth per pupil has improved from moderately high levels in 1983-84 to moderately low levels in 1988-89. In sharp contrast, however, Category IV appears to have actually moved away from the increasing wealth neutrality exhibited by other categories. For Category IV, the relationship between budget per pupil and adjusted valuation increased tenfold from .02 to .20 from 1983-88. Likewise, the correlation between budget and taxable income per pupil increased from -.32 to -.26 in the same time period. Although the contribution of taxable income is quite low and negative in direction, the obvious conclusion about income is that fourth enrollment category districts do not generate much revenue from income and must rely heavily on property taxes to support budgets per pupil-- a dependency which increased tenfold from 1983-88. While the underlying causes for such unique behavior are not clear, the net result has been that under these conditions the relationship between budget and wealth per pupil in Category IV increased from a negative -.08 in 1983-84 to a positive .05 in 1988-89 as the fourth category moved opposite to the equity trend, apparently by increasing its dependence on the property tax base.

While none of the correlations in the fourth enrollment category are exceptionally strong, they are nonetheless important because they are statistically significant and because they indicate that the fourth category is moving opposite to the trend in greater wealth neutrality at the state level and in the other enrollment categories. This observation takes on added meaning when it is noted that the relationship in the fifth enrollment category between adjusted valuation and budget (.37) is much higher than for the fourth category. Further, for fifth category districts taxable income is much more related to budgets per pupil (.27) and to total wealth per pupil (.33). While causality cannot be inferred from descriptive measures such as correlations, the relative strength and direction of the coefficients raise legitimate questions about the uniform achievement of wealth neutrality in the total distribution, and especially where opposite behaviors and associations are found between the fourth and fifth enrollment categories because these trends may work an actual disadvantage for some districts.

Because these trends are disturbing and since causation cannot be inferred from correlation, regression equations were developed in order to explain the contribution of variables to budgets per pupil. As seen in Table 6, for most enrollment categories wealth neutrality is not overwhelmingly present as adjusted assessed valuation is the most significant factor influencing budgets per pupil. At the state level 34% of variance in budgets per pupil in 1988-89 could be attributed to property wealth. While it may be assumed that state aid is the other determinant of budgets per pupil, it is obvious that wealth and resources are still meaningfully linked when correlations are statistically significant and as the regression equations indicate that property wealth is a mainstay in determining budgets. The same pattern holds for the enrollment categories, as in 1988-89 adjusted valuation per pupil explained from 4% to 36% of budgets per pupil. Interestingly, only Category IV again demonstrated apparent wealth neutrality, with adjusted valuation explaining only 4% of budgets per pupil. This data may be misleading, however, because wealth neutrality for these districts may in fact serve no useful purpose. When juxtaposed against the fifth enrollment category where budgets per pupil are already higher, where budgets are more significantly related to wealth (.37), and where budgets per pupil are further based on a higher norm which ultimately yields more revenue to redress a presumably more expensive urban marketplace, wealth neutrality like perfect equality which ignores actual needs, may not be a meaningful benefit for fourth category districts like Turner when the wealth base to which neutrality applies is low and is further unredressed by a lower median budget per pupil.

From these observations, it is possible to assert some final conclusions about resource accessibility, wealth neutrality, and taxpayer equity under the SDEA and enrollment categories. Those observations may be stated as warnings to monitor what appear to be aberrations in the SDEA. Although it is obvious that the state is generally moving toward greater equity in both resource accessibility and wealth neutrality, there are at least seven caveats which strike at the heart of this analysis and should be closely monitored. First, despite the general trend toward equity, that movement is only moderate because the link between budgets and wealth per pupil seen in the correlation coefficients and the regression analysis is still significant. Second, only Category IV has moved against the equity trend, which to us is disturbing because it reaffirms a generally uneven performance of the SDEA and emphasizes an apparently increasing singular disadvantage for districts in the fourth category. Third, the enrollment categories do not seem to serve any rational purpose other than some vaguely defined efficiency benefit. Fourth, the skewness in the fourth enrollment category median and mean wealth and budgets per pupil are worrisome because they suggest that these districts may be underfunded. Fifth, since there are no significant differences between the fourth and fifth enrollment category districts, the statutory division appears to work to an arbitrary disadvantage of fourth enrollment category districts--a disadvantage which reflects negatively on resource accessibility, wealth neutrality, and by implication taxpayer equity. Sixth, when no significant differences between fourth and fifth category districts can be shown, fourth category districts in a fifth category-dominated marketplace appear to suffer a real market disadvantage. Seventh and finally, where the regression analysis finds in 1988-89 that adjusted assessed valuation explained up to

36% of variation in budgets per pupil except in Category IV where it explained only 4% and where wealth per pupil explained up to 34% of variance except in Category IV where it explained only .0026%, it may be argued that the inverse relationship of the SDEA does not successfully provide a uniform or rational relationship between the Kansas School District Equalization Act and equal educational opportunity across the distribution or enrollment categories because performance is uneven and wealth neutrality in this single instance appears to offer more equity than is actually present. These conclusions would strongly suggest that a negative effect of the formula on specific poor fourth category school districts may indeed be a reality which deserves to be explored in terms of substantive impact.

SUBSTANTIVE IMPACT OF THE SDEA AND ENROLLMENT CATEGORIES ON TURNER USD 202

The foregoing analysis unmistakeably argues that resource accessibility, wealth neutrality, and implicitly taxpayer equity have not been fully achieved by the SDEA. The analysis and conclusions are relevant because the determination of statistical equity bears directly on educational opportunity on a daily basis. At the same time, determining statistical equity of a state aid formula is not entirely sufficient to sustain or dismiss arguments related to equal opportunity because the actual effects of a formula on children should also be considered in order to understand whether disadvantage exists on more than an abstract level. It therefore becomes important not only to have seen whether the SDEA is equitable, but also to examine its dollar impact on children in order to see whether the formula actually fails to provide equal treatment or an adequate and equitable educational opportunity. In the present analysis, this means that specific evaluation of the Turner school district's ability to compete in a fifth enrollment category-dominated economic marketplace is as important as conclusions about an inequitable state aid formula.

The first comparison logically begins by comparing Turner to state averages on variables which presumably affect its ability to fund equal educational experiences. Such a grasp of Turner's overall relative position is helpful because it offers a benchmark on which to later base conclusions relating to its complaint against the state. If Turner compares favorably to the state distribution on basic indicators of ability to provide equal educational opportunity, it could be argued that the district is not as disadvantaged as it claims. If on the other hand the district compares unfavorably to the state, then the district may be seen as initially disadvantaged and further subject to any concerns which may later arise from the more specific enrollment category comparisons.

Seven common indicators of capacity to provide equal educational opportunity were used to consider Turner in relation to the state. While different analysts might use a different set of indicators, these factors were judged representative of a district's broad capacity to support an equal educational opportunity under the SDEA. In other words, if these measures are relatively equal among districts or are fully compensated by the state, there should be little difference in their ability to provide an equal education. Wealth per pupil, adjusted assessed valuation per pupil, taxable income per pupil, income tax rebate per pupil, general fund tax rate, general fund budget per pupil, and the pupil-teacher ratio were used as comparative measures. For these comparisons, median values were used to rank Turner against all other groups. The results of the state comparison are seen in Table 7.

Table 8 converts those same measures to a percentage difference between Turner and the state distribution. From the data in Table 8, Turner fares worse than the state median on every measure. Wealth per pupil in Turner ($51561) is only 54% of the state median ($95254), and adjusted assessed valuation in Turner ($38258) is only 56% of the state median ($68888). Income in Turner ($15542) is 58% of the state median ($26905), and the income tax rebate per pupil ($156) is only 62% of the state median ($253). The tax rate in Turner (71.0) is 34% higher than the state median (53.0), while the budget per pupil in Turner ($3252) is only 75% of the median budget per pupil in the state ($4342). Accompanied by a pupil-teacher ratio (18.6) in the Turner school district 40% higher than the state median (13.3), these indicators suggest that Turner is among the least wealthy districts on factors important in the SDEA and that it spends less per pupil while taxing at a higher proportionate level to maintain a higher pupil-teacher ratio.

The second and most expected comparison involves comparing these indicators of fiscal capacity between Turner and the other fourth enrollment category districts. If Turner fares well in comparison to its peers, there is a certain logic to suggesting that it must simply be unhappy with its fourth enrollment category membership in geographic marketplace proximity to districts with higher expenditure authority. If this is true, then the genuine effect of its unique proximity to fifth enrollment category districts and the impact of the economic marketplace in which it competes must be explored. If on the other hand Turner fares poorly in comparison to other fourth category districts, it may be surmised that any inequity could be at least threefold--first by its relatively poor status in the state distribution; second by a position of poorer circumstance among its enrollment peers; and third by any added disadvantage of economic competition in the fifth category marketplace. Therefore, comparing Turner to its peers is a sensible preface to examining its market competitiveness.

TABLE 7
COMPARATIVE WEALTH AMONG
STATE DISTRIBUTION
1988-89

	1 WPP	2 AVPP	3 TIPP	4 ITRPP	5 MILLS	6 BPP	7 PTR
Median	$95254	$68888	$26905	$253	53.0	$4342	13.3
USD 202	51561	38258	15542	156	71.0	3252	18.6

WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

TABLE 8
COMPARATIVE WEALTH AMONG
STATE DISTRIBUTION
1988-89

	1 WPP	2 AVPP	3 TIPP	4 ITRPP	5 MILLS	6 BPP	7 PTR
State Median	100%	100%	100%	100%	100%	100%	100%
USD 202	54%	56%	58%	62%	134%	75%	140%

WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

The same seven indicators of capacity were used to compare all fourth enrollment category districts. Table 9 compares the Turner school district to other fourth enrollment category districts at the median of the distribution.

Table 10 converts those same measures into the percentage difference between Turner and the median of the fourth enrollment category. From the data, Turner ranks below the median on all measures except budget per pupil. Turner's wealth is only 70% of median wealth per pupil, and its adjusted assessed valuation per pupil is only 81% of the median. Taxable income is only slightly more than half the median (55%), and its income tax rebate is only 52% of the median. At the same time Turner's pupil-teacher ratio is 3% higher than the fourth enrollment category median, while its tax rate is 8% above the median. Although the budget per pupil in Turner is 8% above the median of the fourth enrollment category, it cannot be concluded that its additional spending is an indicator of either reward for effort or adequate tax base to fund educational opportunity. In fact, Turner's higher budget per pupil can be seen as a product of both its higher tax effort and lower efficiency performance given its relatively small FTE in the large spread of 1,900-9,999 for the fourth enrollment category and its effort to be market-competitive. From the data in Table 10, Turner can be seen as a substantially sub-median school district whose tax effort is above the median, but whose budget per pupil is only modestly higher despite the formula's assumption that as enrollment declines budget per pupil will increase. These comparisons suggest that in the fourth category, Turner is a low wealth-high effort district for which the formula does not fully correct.

Although comparisons between Turner and other fourth enrollment category districts should be made both by virtue of actual category membership and in order to consider the effects of the formula on the category for general equity purposes, the third and most critical evaluation lies in the actual differences experienced by Turner on factors relating directly to marketplace competition. In other words, Turner alleges that it is demographically more similar to its higher median fifth category neighbors than to any other fourth category district. A mainstay of Turner's complaint is therefore that it cannot provide equal educational opportunity because it is inappropriately strapped to a lower median budget per pupil in an enrollment category based only on size, which further does not recognize Turner's alleged higher market costs arising from proximity to urban districts, and which resultantly creates a specific and unique disadvantage for Turner because it cannot compete with its wealthier fifth enrollment category neighbors who may also take advantage of a higher median which was specifically established to redress those higher marketplace costs. The bottom line, of course, is that Turner would prefer to access the higher median budget per pupil

TABLE 9
COMPARATIVE WEALTH AMONG FOURTH ENROLLMENT CATEGORY DISTRICTS
1988-89

	1	2	3	4	5	6	7
Median	$73,250	$45,191	$26,372	$275	65.96	$2985	18.0
USD 202	51,259	36,636	14,612	144	71.00	3214	18.6

WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

TABLE 10
COMPARATIVE WEALTH AMONG FOURTH ENROLLMENT CATEGORY DISTRICTS
1988-89

	1	2	3	4	5	6	7
Median	100%	100%	100%	100%	100%	100%	100%
USD 202	70%	81%	55%	52%	108%	108%	103%

WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

available to its neighbors. Comparison between Turner and its fifth category neighbors thus becomes essential in determining whether or not Turner suffers a specific disadvantage by its membership in the fourth enrollment category.

The applicable comparison factors which seem critical to providing equal opportunity include those used in looking at the fourth enrollment category, and because Turner is uniquely situated where it must compete in an urban market, other factors should also be considered. These conditions necessitate comparing Turner to its immediately adjacent fifth enrollment category neighbors on the per-pupil issues of fiscal capacity including budget, income, property wealth, pupil-teacher ratios, teacher salaries and turnover, administrator salaries, tax effort, and the presence or absence of any other factors in Turner relating to higher urban costs on which the rationale for creating the fifth enrollment category is based. Once those comparisons have been made, the question becomes whether the legislature has been remiss in its duty to equalize educational opportunity by recognizing cost differences only as a function of enrollment, rather than including other standards relating to a socioeconomic marketplace. If Turner is found to be highly analogous in its composite nature to its neighboring districts which are allowed to operate from a higher norm budget per pupil because of their higher urban costs and who are simultaneously advantaged by both higher revenue capacity and membership in the fifth enrollment category entitling them to a higher norm budget, then it would become apparent that the SDEA and enrollment categories neither serve to equalize educational opportunity on genuinely legitimate factors nor to relate to a rational scheme by operating to exclude certain children whose needs are in fact higher.

Table 11 compares the Turner school district to its immediately adjacent fifth enrollment category neighbors on the same seven wealth factors used earlier as influencers of educational budgets. These factors provide a comparison of Turner's ability to compete in the marketplace.

Table 12 converts those same measures into the percentage difference between Turner and each of its fifth enrollment category neighbors. From the data, Turner is shown to be a substantially poorer school district than its fifth enrollment category neighbors, ranking last on virtually every measure. Wealth per pupil in Turner ranks last as Turner holds only 76% of the wealth of the next poorest district and possesses only 30% of the wealth per pupil found in the richest district. Assessed valuation per pupil in Turner also ranks last as Turner holds 92% of the valuation found in the next lowest district and only 38% of the valuation contained in the wealthiest district. Income in the Turner district is significantly lower, as Turner has only 53% of the next lowest district's income and 38% of the richest

TABLE 11
COMPARISON OF USD 202 AND NEIGHBORING FIFTH ENROLLMENT DISTRICTS
1988-89

USD	FTE	WPP	AVPP	TIPP	ITRPP	MILLS	BPP	PTR
512	29000	$171567	$96184	$75382	$953	76.29	$3756	17.7
233	12682	80984	53549	27435	288	92.94	3787	16.2
500	22345	67223	39633	27585	288	49.03	3329	18.7
202	3800	51259	36646	14612	144	71.00	3214	18.6

USD= 512 (Shawnee Mission); 233 (Olathe); 500 (Kansas City); 202 (Turner).
WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

TABLE 12
COMPARISON OF USD 202 AND NEIGHBORING FIFTH ENROLLMENT DISTRICTS AS PERCENT DIFFERENCE 1988-89

USD	FTE	WPP	AVPP	TIPP	ITRPP	MILLS	BPP	PTR
512	29000	30%	38%	38%	15%	93%	86%	105%
233	12682	63%	68%	53%	50%	76%	85%	115%
500	22345	76%	92%	53%	50%	145%	97%	99%
202	3800	--	--	--	--	--	--	--

WPP= Wealth per pupil
AVPP= Adjusted valuation per pupil
TIPP= Taxable income per pupil
ITRPP= Income tax rebate per pupil
MILLS= Tax rate in mills
BPP= Budget per pupil
PTR= Pupil-teacher ratio

district's income per pupil. The taxable income rebate per pupil in Turner is especially inferior as the district receives 50% of the rebate of the next lowest district and only 15% of the rebate returned to the wealthiest district--a factor noted earlier in this analysis when Turner's dependence on property taxes rather than income was established. At the same time, only one district has a higher pupil-teacher ratio than Turner. When considered in tandem with the fact that budgets per pupil in the wealthier fifth category districts are 3-14% higher than Turner's budget per pupil and where Turner's tax rate is 45% greater than its closest neighbor in wealth and only 7% below the wealthiest district's tax rate, these factors either suggest that wealth and budgets per pupil are not fully equalized by the state aid formula, or that the higher median budget per pupil of the fifth category is a real advantage which allows wealthier districts to spend more under relatively less tax effort.

These data initially suggest that Turner may be meaningfully disadvantaged on common indicators of ability to provide an equal educational opportunity. The disadvantage appears to hold true in comparison to the entire state distribution, in comparison to its fourth enrollment category peers, and in comparison to its economic marketplace competitors. Under these conditions, it appears that Turner is the poorest district in the comparison group, exerts greater tax effort than its wealthier neighbors, and is simultaneously restricted to a lower budget per pupil by the fourth enrollment median which makes equal expenditures under comparable tax effort unlikely. Unless Turner has engaged in unwise resource management, or has failed to exercise reasonable local leeway to increase its budget per pupil despite disproportionate effort, or has fabricated a myth regarding its alleged higher urban costs, it would appear that the fourth enrollment category median and the SDEA in fact work to the district's specific disadvantage on common indicators of local ability to provide an equal educational opportunity.

The foregoing conclusions suggest the importance of four final additional comparisons between Turner and its fifth category neighbors. If Turner is genuinely disadvantaged in its geographic marketplace, it should be able to show that it has engaged in sound business practices which still fail to bring its capacity to par with its wealthier neighbors. Second, the Turner district should be able to show that it cannot compete for those services which may be said to have a strong impact on student achievement, i.e., professional salaries. Third, the district should prove that its student profile is highly similar to those costs on which the higher fifth category median is based. If in evaluating these factors the Turner district is found to be at a disadvantage, then the conclusion could be finally supported that the SDEA and the fourth category median are inadequate and inequitable. Fourth and finally, this conclusion should be demonstrable by calculating the real dollar losses incurred by

Turner as a result of the fourth category median in a fifth category marketplace.

A marketplace evaluation should look at the relative efficiency and business management of the school district. Factors such as cash position, the direction of unencumbered cash balances over several years, year-end cash transfers, and the district's expenditures for selected costs such as professional salaries should be included. These factors should then be used to compare Turner to its neighbors. For example, if Turner is conserving or increasing cash balances at a higher rate than its neighbors or is transferring unused amounts into special funds at a rate greater than its neighbors, or compares favorably to marketplace competitors on other factors such as professional salaries and teacher turnover, the issue of noncompetitiveness might be weakened. If on the other hand Turner is below its neighbors on these factors and simultaneously poorer and restricted by the fourth enrollment category median from equal resources to compete in the marketplace, Turner's argument of inequity would be strengthened.

Tables 13 and 14 illustrate these factors by comparing Turner to its economic marketplace competitors. Table 13 considers year-end cash carryover as a dollar amount, cash carryover as a percentage of the general fund budget, unused budget authority, and year-end transfers of unencumbered amounts to special funds. These data are described for the three-year period 1986-87, 1987-88, and 1988-89 in order to make general observations over several years. Table 14 considers professional salaries and teacher turnover.

As seen in Table 13, year-end cash data reflect a position of relative prudence on the part of the Turner district. Between the two most recent years, Turner's unencumbered cash balance was 9.8% of the general fund budget compared to 9.6% in Olathe, 12.4% in Shawnee Mission, and 27.6% in Kansas City. These carryover amounts could be considered very marginal in all three of the lowest districts,[18] and Turner's carryover is near the bottom of the range. These low carryover amounts cannot likely be attributed to year-end transfers of surplus cash, as none of the districts made large transfers into special funds during the comparison period, despite a two-year limit on taxes that could be levied. In fact, no district made surplus cash transfers to capital outlay. Additionally, cash balances have remained stable in all of the districts, indicating that no district has been rapidly accumulating cash in the general fund. Consequently, no failure on the part of the Turner school district to purchase educational services can be made. Very importantly, Turner has also had no unused budget authority in the last two years. Two of the wealthier districts, however, did accumulate unused budget authority. The summary of cash factors would suggest that Turner has exercised most of its options for increased revenue,

TABLE 13
YEAR-END CASH
1986-89

	1987-88	1988-89	1989-90	PERCENT	UNUSED AUTHORITY
CARRYOVER					
512	$14749062	$10513388	$13460650	12.4	$2396834
233	3299243	3097992	3829714	9.6%	2651064
500	21022780	20955850	20149268	27.6%	0
202	889384	1198467	1213086	9.8%	0

TRANSFERS	
512	None
233	None
500	None
202	None

CARRYOVER= unencumbered July 1 cash from prior years.
PERCENT= carryover as a percent of the general fund budget.
UNUSED AUTHORITY= unused budget authority.
TRANSFERS= transfer of unused funds into capital outlay only.

TABLE 14
PROFESSIONAL SALARIES 1988-89

USD	TCHR	PCT*	ADM	PCT*	TURNOVER
512	$32,412	24%	$56,598	27%	5.6%
233	30,466	16%	48,892	9%	3.3%
500	27,171	4%	43,239	-3%	8.0%
202	26,224	--	44,689	--	12%

TCHR= average teacher salary including fringe.
ADM= average principal's salary including fringe.
TURNOVER= percentage of teacher turnover.
PCT*= percent difference between Turner and the corresponding fifth enrollment category district.

including full budget authority and local option overrides,[19] no utilization of the transfer mechanism to build up idle funds, and cash balances that are uncomfortably low--conditions which do not favor the ability to compete aggressively when also held to a lower enrollment category median budget.

Table 14 examines teacher turnover rates and teacher and administrator salaries between Turner and its adjacent fifth category neighbors. The difference in teacher salaries obviously corresponds to the wealth of each district. Turner's average teacher salary ($26,224) is 4% below Kansas City ($27,171) and 16% below Olathe ($30,466). In the wealthiest district the instructional salary differential is 24% as Shawnee Mission teachers earn an average $32,413. Administrator salaries mostly parallel the same pattern, with Turner administrators earning 3% ($44,689) more than Kansas City administrators, but 9% less than Olathe administrators ($48,892) and 27% less than administrators in Shawnee Mission ($56,598). The contention that Turner is unable to retain the best teachers appears to be confirmed as teacher turnover (12%) in Turner for 1988-89 was significantly higher than in the neighboring districts of Shawnee Mission (5.6%), Olathe (3.3%), and Kansas City (8.0%). These comparisons are significant because they reflect the most valuable asset of a district, i.e., its instructional staff. If a district cannot compensate its teachers adequately, especially in an area where staff mobility would not require physical relocation, that district could quickly become a training ground for teachers who would eventually move into better paying schools. In Turner's instance, this argument appears to be quite sound.[20]

The remaining comparison involves Turner's profile on urban comparables. Such a comparison is extremely important for four reasons. First, the fifth enrollment category districts argue that their median is necessarily higher because of the increased costs associated with an urban setting.[21] These factors include such considerations as indigent textbook costs, security, adult basic education, vocational education, alternative education, drop-out prevention, facility maintenance on a larger number of buildings, higher incidence of special education children in urban areas, elementary counselors, liason with the courts and SRS, home problems, remediation, and diverse ethnic backgrounds--all of which result in higher overall costs. These costs have been viewed as endemic to urban districts and were the stated basis for legislative establishment of the fifth enrollment category. If Turner shares these same characteristics, its lower median budget could be seen as irrational and obstructive to equal opportunity. Second, if these arguments are persuasive, Turner's similarity to fifth enrollment category districts should be more controlling than the present efficiency rationale of the fourth enrollment category. Third, the number of actual dollars lost by Turner as a member of the fourth instead of the fifth enrollment category becomes a working disparity. Fourth and finally, those losses become even more significant because they are cumulative, i.e., present and future dollars are the product of applying budget lids to a higher base budget in each succeeding year, allowing fifth category districts to continually move above Turner. For Turner, a lower median budget with which to meet alleged urban costs would be therefore be both a present and cumulative disadvantage as the district would continue to lag farther behind its marketplace competitors.

To compare Turner with its fifth category neighbors, several different indicators of urban-ness were considered. Because of problems obtaining a full range of data and because of data overlap which tended to describe similar conditions,[22] free and reduced lunch participation and percentage of minority children were finally accepted as representative of higher urban costs. As seen in Table 15, these variables were used to compare Turner to its immediately adjacent fifth enrollment category neighbors.

The data in Table 15 suggest that Turner's profile is in fact similar to its fifth category neighbors. The issue of income-disadvantaged children in the Turner schools is strongly supported as Turner ranks second with 30% of its children receiving free or reduced lunches. Only Kansas City has more children on lunch subsidy (61.9%). Olathe ranks a distant third on subsidized lunches (12.6%), and Shawnee Mission ranks last with only 8.9% of its children among this low income group. On the other urban cost variable of minority population, Turner again ranked second with 12.7% of its student population classified as racial minorities, and was again exceeded only by Kansas City with 58.2% minorities. Third and fourth rankings on minority population were reversed, as Shawnee Mission held 7.1% minority and Olathe ranked last with only 6.7% minority children. These factors suggest that in the immediate geographic marketplace, Turner holds a significantly comparable urban profile to its fifth category neighbors. If the legislative rationale for establishing the fifth enrollment category in fact legitimately requires a higher median budget per pupil for schools exhibiting urban characteristics, the Turner school district would appear to be unreasonably handicapped because it is subject to the lower median budget of the fourth enrollment category.

The sum of these observations allows for some market conclusions. First, it can be seen that Turner exhibits substantial tax effort while spending less per pupil. Second, it can further be noted that the state aid formula does not fully offset that effort because even under the SDEA's inverse relationship of state aid to wealth, Turner's tax rate is not greatly different than its wealthier neighbors--no doubt due in part to fourth enrollment category membership whereby the skewness seen earlier can result in a partly unaided higher tax effort in order to spend closer to its fifth category neighbors.

TABLE 15
URBAN COMPARATIVES
1988-89

USD	%Free Lunch	Rank	%Minority Students	Rank
512	8.9%	4	7.1%	3
233	12.6%	3	6.7%	4
500	61.9%	1	58.2%	1
202	30.2%	2	12.7%	2

Third, it is obvious that Turner educates fewer children on fewer dollars per pupil than is true for its fifth category neighbors. But if the logic of higher costs for lower numbers of pupils is correct, Turner should be less efficient and consequently spending more per pupil than fifth enrollment districts--instead, the inverse is true as a direct result of the lower median budget per pupil of the fourth enrollment category. Although the picture is extremely complex and interdependent, the result becomes that Turner holds less wealth, exerts higher tax effort, is permitted less revenue because of the formula's preoccupation with efficiency, holds high urban demographics, and educates fewer children on a lower budget per pupil. At the same time, more efficient districts in the fifth enrollment category are permitted access to greater resources through a higher median budget per pupil with less actual tax effort. From this perspective and others, Turner in fact suffers both a statistical and a substantive disadvantage through the SDEA and its use of enrollment categories.

Finally, these conclusions are supportable by a bottom line which can be expressed as a real dollar effect. Using documents relating to the 1988-89 school year submitted to the consultants by the Turner school district, the dollar impact on Turner appears significant when the marketplace is considered. In calculating estimated state aid first as a fourth enrollment category district and then again as if it were a fifth category district, the impact of the median differences becomes obvious. First, the base difference in medians of $274 per pupil in 1988-89 immediately yielded a 7% differential. Second, the local effort rate dropped by 9% from .0207228 as a fourth category district to .0189859 as a fifth category district, a significant factor in local tax effort and in computing the state's share. The effect of the decreased local effort rate was sufficient to lower the local contribution from $6,284,781 to $4,974,921 or a decrease of 21%. At the same time, the higher median of the fifth enrollment category also resulted in a general fund budget increase from $12,015,118 to $13,070,018, or an increase in resources of nearly 9%. The combination of lesser local effort and increased budget resulted in an increase of nearly 5% in state aid as the state was required to contribute an additional $336,860 to Turner's general fund budget. In sum, the result of recalculating the budget at the fifth enrollment category median was far more substantial than merely looking at the 7% difference in category medians--a difference which resulted in decreased local effort, increased state aid, and a bottom line increase in real dollars to spend on educational opportunity.

The difference in bottom lines, according to statements by district officials,[23] has had a substantially restrictive effect on education in the district. The district charges that the operation of the lower median has not only resulted in inability to compete in the economic marketplace as described earlier, but has also had other direct effects on educational programs, including reductions and deferrals for urban needs which are best addressed through social programs. For example, in the recent past the district has been unable to expand elementary guidance services and has reduced the high school guidance staff by one-third, has reduced or deferred social workers, and has reduced or deferred elementary librarians.[24] Finally, the district has been unable to attract and retain highly qualified staff because as the report of the factfinder in 1989 noted, the district has been unable to provide competitive salaries with the result being a "training ground" psyche that surrounds the Turner school district.[25] From the statistical and substantive analysis, it appears that the SDEA and the enrollment categories have in fact irrationally served to the specific disadvantage of equal educational opportunity in the Turner school district.

CONCLUSIONS OF FACT AND OPINION ABOUT THE EFFECT OF THE SDEA AND THE FOURTH ENROLLMENT CATEGORY ON TURNER

These issues lead to final summary of the consultants' observations and impressions. Although the foregoing arguments have been lengthy and complex, the essential reality is that Turner desires to become equal with fifth enrollment category districts because the SDEA has failed to rationally and suitably provide for the fundamental educational needs of its children.

That Turner is not equal to its wealthier and better aided neighbors is supported by this analysis. In our opinion there is little doubt that regardless of whether the statistical arguments are irrefutable or whether the substantive differences are so great as to be unconscionable, the simple fact remains that there are genuine differences and that this district must compete in a marketplace where fifth category membership means more money, and in some instances, with greater state participation. That fact alone appears sufficient to call the SDEA and the enrollment categories into question, and the fact is underscored when it is remembered that Turner belongs to the fourth enrollment category by virtue of one sole reason--its enrollment is below the threshold for fifth category membership. The net sum becomes that regardless of Turner's educational needs, its budget is tightly linked to an efficiency measure and is completely uncoupled from any recognition of the higher costs of equal opportunity granted to the larger urban districts.

While in our opinion the SDEA has many laudable features, on this plane it is unreasonably and arbitrarily discriminatory because it takes a school district which is substantially poorer than its neighbors, which exerts significant tax effort, which spends less per pupil than its neighbors, and which demonstrates every demographic characteristic for which the fifth category is awarded higher funding, and forces it into an ill-fitting model of efficiency without granting the same concern for equal opportunity that it extends to larger and wealthier districts. When these observations are linked to the erratic performance of the SDEA on the standards of equity, to the median-preserving nature of budget lids under the SDEA, and to the legislature's implied intent to fully equalize educational opportunity, the outcome is a statutory scheme which cannot be considered rational because it is not consonant with either equitable or adequate financing for public schools. While we know that many systems for financing schools would be far worse, we also believe that the SDEA cannot be held up as a panacea simply because it does not provide a uniformly equal educational opportunity to every child within the four corners of the state.

In the scrutiny of this analysis, we have concluded that there is specific harm to the Turner school district because it is economically disadvantaged in an urban marketplace where it will necessarily fall behind because it cannot compete equally in its present enrollment category. This conclusion alone is sufficient in our minds to determine that the conditions are in place to guarantee that equal educational opportunity is flawed. If the SDEA's intent is to truly provide equality of educational opportunity through the redress of economic disadvantage by an equalization formula, then the uneven performance on equity standards and the indifference of the SDEA to legitimate cost differentials must be corrected. Under the conditions of equity set forth early in this analysis, an equalization formula should uniformly eliminate wealth-related opportunity over time, and it should further devote all its energies to eradicating those factors which do not further the goal of equality. It is therefore our firm premise that an equalization formula which does not meet these criteria is both flawed and irrational. In the case of the SDEA, equity is not uniform and the enrollment categories do little more than focus resources on economic efficiencies rather than on educational needs. As a consequence, we aver that the SDEA does not fully provide equal educational opportunity or substantially further a rational state interest.

POSTSCRIPT

It is finally apparent that we believe changes should be made in the SDEA in order to provide greater equity to all Kansas children. What those changes should be and how they should be implemented is, of course, a legislative prerogative with appropriate assistance or motivation by a court. But it is also prudent that we anticipate the sensible question of what should be done.

As we have pondered this question, we have reached several conclusions which should now be voiced. First, we hasten to state one last time that we do not attack the philosophy of equalization. We affirm our support of the concept, and we further believe it is entirely appropriate to Kansas. We do, however, strongly believe that an equalization scheme should do no less than fully equalize educational opportunity for absolutely every child. Second, we also recognize that the solution is neither simple, clear, or inexpensive. And third, our sole disagreement with the SDEA rests on one firm premise: the uneven performance of the SDEA on resource accessibility and wealth neutrality especially through the enrollment categories results in unequal treatment of children, primarily because the structure of the enrollment categories is too narrowly designed to fit a modern concept of equal educational opportunity.

We fully recognize that a protracted ideological debate could be pursued at this point to the enjoyment of only a pitifully few persons. Therefore, we have no intention of further arguing abstract equity at length, but we do believe that equity is real and that it is important that we exit by at least providing a compass in the search for equity. Our major thesis, therefore, can be stated in five brief guideposts.

First, we believe that the SDEA should be legislatively subjected to even greater rigorous dissection of its parts in order to determine the unclear factors which are driving its somewhat uneven performance. The whole question of somewhat disparate mean and median performance is troublesome by raising not only questions about equitable distribution, but also questions about adequate levels of support. Implicit in that discussion is the admonition to reexamine how adequacy is defined in Kansas and to be certain that the definition of adequacy is related to genuine needs rather than to average practice. We believe that the question of a genuinely adequate support base for education should be the initial starting place before engaging in probing questions about distributional variations. Additionally, there should be further analysis of the issues of resource accessibility, wealth neutrality, and taxpayer equity. Implicit in that process is a painstaking argument about ability to pay, i.e., a thorough redefinition of local wealth in the formula. In other words, this present analysis is not definitive because it only found flaws without attempting to fully discover their roots--the formula must be carefully combed to seek out every minutely possible source of variance in educational opportunity. These questions, among others, should initially shape any intended improvements to the formula.

Second, we believe that the whole enrollment category scheme should be completely reexamined for its intent and effect, and that mechanisms embracing other legitimate cost factors should be allowed to take dominant control of state aid distribution. It is hard to imagine a more difficult or necessary task, but we see no other alternative because we are singularly unimpressed by any aid mechanism which places efficiency above opportunity. Unfortunately, there is little successful experience in this area to which the state may look because price differential indexes have enjoyed relatively little success throughout the nation. The search should be instigated, however, and we are convinced that at the least price-sensitive factors should be incorporated into the concept of enrollment categories while reducing the dependence on economies of scale.

Third, we believe that the search for greater equity will inevitably result in a greater state share of educational budgets because experience has shown it to be the obvious and sensible means to implement equity improvement. While this is highly unpalatable in many circles, the weight of school finance reform suggests that state assumption of educational opportunity is an unavoidable eventuality. It is unarguably demonstrable that variations in quality and opportunity absent strong state intervention are wealth-dependent. Even if that barrier could be overcome, it would make little sense in today's mobile society to argue that the operation of local control in a community which chose to devalue education would not irreparably harm children--in other words, we do not believe that the benefits of local control should supercede the larger welfare of a child. As a consequence, we think that improvements to the adequacy and equity of the SDEA will necessarily result in a greater state involvement in financing education.

Fourth, we believe that the equalization philosophy should be relentlessly pursued in the State of Kansas. We know of no superior scheme--we only argue that it can be improved. At the same time, however, we would discourage any complacent pride in the SDEA because we do not believe an equalization formula which substantially grants equality is sufficient. In contrast, equality of educational opportunity should be absolutely achieved. Although that may be an entirely impossible task in the fluid context of educational opportunity, there is no rationale which would justify the failure to relentlessly pursue equity. In other words, we believe the legislature should not rest until it is assured that every child has every disadvantage totally redressed regardless of price. The obvious implication is that legislative vigil is a permanent reality in modern society.

In that context, we offer our fifth and final belief about changes in the SDEA. It should be clearly stated that we view recent legislative action in setting the equalization formula aside with alarm. Although we largely understand the reasons why the formula was effectively abandoned, we counter that the effect is to worsen any inequities already present in the SDEA because by freezing state aid at the prior year's level subject only to changes in enrollment, at least five serious problems arise. First, districts which would have seen state aid increase because of changes in wealth now cannot realize new monies. Because the SDEA previously found those districts deserving of increased aid, they cannot avoid present harm since the formula has been rendered inoperable. Second, districts which would have lost aid presumably would have seen their local ability to pay increase. With the SDEA inoperable, they are effectively protected against the losses the SDEA was designed to implement. Third, in setting the SDEA aside, the legislature once again prevented the formula it designed from working properly, i.e., the increasingly common practice of hold-harmless has effectively stymied the principle of equalization which the formula was designed to implement. Fourth, in setting the SDEA aside the legislature in effect implemented a flat grant system, softened only by the residual effect of guaranteeing aid in the same proportion as the prior year. In the entire history of school finance, almost no other form of state aid has less relationship to educational needs. Fifth and finally, we believe that moving away from the SDEA is dangerous precedent which opens the door to enormous changes in the future which may impact significantly on equity. In other words, initially setting a 17 year-old formula aside is difficult, but it may become progressively easier in the future with the potential to seriously impair the balance of equity that has been painfully achieved.

For these and other reasons, we find sufficient cause to criticize both the SDEA and its current suspension. Our bottom line recommendation on what should be done is to restore the SDEA and examine it minutely for its flaws. We believe in the SDEA, but as it creates differential treatment in some instances, we further believe that it is incumbent on Kansas policymakers to recognize that assumptions about equalization formulas and the adequacy and equity of cost adjustments cannot be upheld in the face of both uneven effect and irrationality on the principles of fiscal equity. Because in our opinion the formula disadvantages Turner children in the pursuit of equal educational opportunity, the principle of equalization enacted by the legislature cannot be fully implemented until corrections in the SDEA are made.

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ENDNOTES

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2. 347 U.S. 483, 74 S.Ct. 686, 98 L.Ed. 873 (1954).

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5. 487 P.2d 1241 (Cal. 1971).

6. Citation omitted.

7. K.S.A. 72-7030, et seq., (1973).

8. For an excellent indepth treatment of the development of the principles and measurement of equity, see Robert Berne and Leanna Stiefel. The Measurement of Equity in School Finance: Conceptual, Methodological, and Empirical Dimensions. The Johns Hopkins University Press. Baltimore, 1984.

9. This analysis is interested in measures which are based in both the mean and median as indicators of wealth and budget per pupil because we are not convinced that the median as utilized in Kansas is the most appropriate measure. The tools briefly described below take both measures of central tendency into account at various times.

   The resource equity standard is evaluated by the following measures:

   Unrestricted range: Highest budget per pupil minus the lowest budget per pupil, yielding the difference in spending. Useful in describing the raw spread of differences. In this research it is used to discuss both wealth per pupil and budgets per pupil. As the unrestricted range increases, the likelihood of inequity increases. This measure was applied to both wealth per pupil and budget per pupil.

   Restricted range: Captures the range of budgets per pupil after ignoring the upper and lower 5 percents of scores, yielding a value without the effect of unusual cases. Useful in describing the "normal" distribution. In this research it is used to discuss both wealth per pupil and budgets per pupil. As the restricted range increases, the likelihood of inequity increases. This measure was applied to both wealth per pupil and budget per pupil.

Coefficient of variation: Defined as the square root of the variance of per-pupil budgets divided by the mean per-pupil budget, the coefficient of variation is a dispersion measure which is less reactive to changes in the mean than is true for some other mean-based measures. The coefficient of variation is a useful tool by deriving a quickly readable score between 0 and 1 where 0 indicates equity.

Mean: Defined as the sum of scores divided by the number of scores and therefore sensitive to individual score values, the mean is simply the average.

Median: Defined as the middle-most score in a distribution when ranked in order, the median is a highly stable score unaffected by outliers of wealth or budget in a distribution.

Standard deviation: In a normal distribution of scores, a bell-shaped curve is expected. With a bell curve, the bulk of scores should lie within ± one standard deviation of either side of the mean with the remainder outside. As will be explained later, in looking at resource equity a normal distribution should occur and where differences are present, questions should be raised.

Post-hoc test for significant differences: A statistical procedure which compares groups against one another for significant differences. In this study it is used in an analysis of variance to determine whether actual expenditures in enrollment categories are appropriately reflected in the legislatively established median budgets per pupil.

Skewness: A term, rather than a specific measure, which considers the clustering of scores in a distribution. Useful in our consideration of both the mean and median in wealth and budgets per pupil in Kansas, skewness looks at a normal bell-curve distribution by defining kurtosis--i.e., where does the mean lie in relation to the median. In a normally defined distribution, the mean and median will lie in close proximity. As will become evident later, however, when sizeable skewness exists in a distribution, it raises several questions including, for example, whether the median in Kansas is the most appropriate measure of central tendency in identifying educational needs.

10. As will be described later in the text of this analysis, wealth neutrality is simpler to measure. Consequently, only two statistical tests were utilized:

Pearson product-moment correlation coefficient: A measure which examines the movement of one variable in relation to movement of another variable. For example, if a district's wealth per pupil and its budget per pupil move together in the same direction by roughly equal proportions, there is a positive (and possibly suspect) association between wealth and opportunity. Ranging in value from -1 to +1 where positive variations greater than zero are contrary to equity, the Pearson is an effective measure to evaluate fiscal neutrality. In this evaluation, correlations were run between wealth per pupil, budget per pupil, adjusted assessed valuation, and taxable income per pupil.

Regression analysis: Regression analysis is a powerful tool for inferring the contribution of individual variables to a total outcome. Wealth per pupil, for example, might be seen as the most powerful predictor of budget per pupil. If so, then wealth neutrality is obviously violated. In the present instance, regression is used to predict the contribution of wealth per pupil, adjusted assessed valuation, and taxable income to budget per pupil. The greatest contribution of regression analysis is confirming the associations suggested by descriptive correlations.

11. The percent increase in Category V should probably be considered as spurious because it is doubtful if a restricted range measure is legitimate with only five districts in the distribution. As explained in the text, calculation of a restricted range would result in removal of two districts from the distribution, with the effect of removing nearly half of the total population.

12. See the earlier endnote 11 regarding the propriety of a restricted range measure on an extremely small distribution. Here again the unrestricted range is probably a better indicator, in this instance 61%.

13. It should be underscored here that causality is not inferred. The correlation and regression measures employed later will assist in determining formula intervention in suspect relationships.

14. As stated earlier, data for 1978-79 was not included in the interest of brevity and completeness and because any present variability may be assumed to be representative of earlier years as well.

15. Skewness of the budget per pupil indicates the relative position of the mean to the median, with a positive value indicating that the mean is greater than the median. The more the mean shifts away from the median, the greater the potential inequity in the distribution of resources available per pupil. The coefficient of variation is used in horizontal equity discussion and is defined as the square root of the

variance of the budget per pupil minus the average squared deviation from the mean and divided by the mean budget per pupil. Increases in the coefficient are associated with increased disparity.

16. The results of tests for significant differences found between Categories III and V are an ironic complication by making the issue larger than just the Turner lawsuit, i.e., the third category's inclusion likely results from its median budget per pupil being tied to the fourth enrollment category through the linear transition. The irony of an equitable formula is that when it is unitary, inequities are pervasive. When its parts are disconnected, however, it is subject to criticism for its failure to provide a unitary system.

17. A convoluted issue which may be attempted against Turner by the state deserves comment here. It may be argued that the formula actually disadvantages the largest urban districts because of an apparent increase in the effect of income on state aid. In other words, the definition of wealth in the SDEA has been recently attacked by urban districts because the proportion of income in the formula for those districts has grown at a greater rate than assessed valuation due to federal and state tax reform. Consequently, urban districts believe their aid has been shifted to smaller districts which they argue results in higher property taxes for urban districts. While that argument has some merit in showing further negative formula effects, it does not lessen the argument advanced by low wealth districts (e.g., Turner) because there is no advantage to having both low income and low wealth when the correlation between budget per pupil and wealth still indicates that higher wealth is tantamount to a higher budget per pupil. It thus cannot be argued that any disadvantage to wealthier fifth category districts is a mitigating factor on wealth relationships.

18. In The Matter of Fact Finding Involving U.S.D. #202 and KNEA Turner. Case 72-I-5-1989. Report of the Fact Finder David E. Shulenberger. September 16, 1989. The factfinder's report also noted the low carryover present in the Turner district and recommended that the district should rebuild its cash reserves to approximately 15%. This recommendation to increase cash balances should be applied to Turner's cash balances seen in Table 13.

19. For 1990-91, the Turner district chose to place its option to locally levy an additional maximum percentage increase to its budget on the ballot. The election failed 710 to 1120 (1.6:1), verifying the district's perception of high rates of taxation.

20. Of the comparisons, the teacher salary and turnover data are the most significant because of the direct instructional effect. This belief is in accord with the factfinder's report of September 1989 which noted that with the historical average teacher turnover in Turner of 12% per year, the effect was a full scale replacement of teaching staff every 8 years.

21. See, for example, Testimony before the Special Committee on School Finance. Dr. Jim Yonally, Shawnee Mission Public Schools, October 12, 1988.

22. Several different indicators of urban problems were considered, including percentage of children receiving free or reduced lunches, free or reduced texts, percent minority population, special education children, and low income. Availability of data proved to be a problem as the State Department of Education does not collect or summarize these records. Additionally, in discussing these data with the KSDE, it was agreed that several of the data probably overlapped by describing analogous conditions, making it unnecessary to consider all of the original variables. Finally, special education was not included in this analysis because the separate reimbursement formula held the potential to only confuse the issues. Consequently, free and reduced lunch participation was accepted as indicative of income and the percentage of minority children was believed to indicate other special costs associated with urban schools.

23. Written Response by Drs. Hale and Holloway to An Eleven-Item Query by Dr. David C. Thompson, Principal Investigator. August 8, 1990.

24. See endnote 23 above.

25. Report of the Fact Finder, September 1989. See endnote 18.

APPENDIXES A, B, C

APPENDIX A

MEAN-BASED DATA
ON
1983-84 and 1988-89
SCHOOL YEARS

BY
STATE AND
INDIVIDUAL CATEGORIES

X_1 : 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3197.23	713.09	40.9	508493.34	22.3	304
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1989.4	6028.27	4038.87	971957.92	3.26E9	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
30	2440.49	2790.59	2997.9	3502.96	4073.16
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
30	3128.19	3067.01	2.3	1.46	

X_2: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
142919.42	91851.72	5268.06	8.44E9	64.27	304
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
28843	610757	581914	43447505	8.77E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
30	57759.5	74103.5	115961	186861.5	262435.5
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
30	119958.98	102098.7	4.44	1.75	

X_3: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
123686.63	90549.97	5193.4	8.2E9	73.21	304
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
15768	589697	573929	37600735	7.14E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
30	42485.8	54747.5	94603	169592.5	242806.7
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
30	98107.04	78788.03	4.67	1.3	

X_4: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
19398.94	5170.67	296.56	26735836.3	26.65	304
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
7334	42874	35540	5897278	1.23E11	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
30	13496.7	15771	18943.5	22450.5	26061.5
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
30	18728.8	18056.74	1.25	.71	

X_1 : 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4485	820.33	136.72	672940.16	18.29	36
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3288.66	6028.27	2739.61	161459.92	7.48E8	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	3402.21	3844.15	4343.39	5153.19	5786.6
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	4413.6	4344.33	-.96	.37	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
263778.28	112247.69	18707.95	1.26E10	42.55	36
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
93892	589697	495805	9496018	2.95E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	172857.2	184305.5	237081	313257	386466.4
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	244207.36	226921.74	1.91	1.39	

X_3: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
20586.44	5340.52	890.09	28521130.2	25.94	36
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
10340	34057	23717	741112	1.63E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	14860.2	17133.5	20139.5	22931.5	27876.1
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	19934.03	19293.03	.08	.62	

X_4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
284364.67	113361.04	18893.51	1.29E10	39.86	36

Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
106759	610757	503998	10237128	3.36E12	0

# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	188487.1	203133.5	261588.5	337381	413020.3

# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	265510.57	248627.8	1.71	1.32	

Range Restrictions

	Column Name:	Restriction:
AND	catagory	1 ≤ X ≤ 1

X_1: 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3588.62	388.81	47.15	151171.58	10.83	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2602.73	4909.48	2306.75	244026.09	8.86E8	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	3151.59	3411.5	3542.55	3789	4015.93
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
7	3568.29	3548.19	1.67	.59	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
156631.79	79538.97	9645.52	6.33E9	50.78	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
34120	426842	392722	10650962	2.09E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	58019.8	98632.5	145681.5	200917.5	250869.2
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
7	137017.37	117209.46	1.36	.97	

X_3: Taxable income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
19806.62	5145.11	623.94	26472138.84	25.98	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
9442	34896	25454	1346850	2.85E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	13885.6	15860	19072	23315.5	26231
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
7	19154.37	18499.64	.34	.52	

X_4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
176438.44	82217.32	9970.31	6.76E9	46.6	68

Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
47475	454332	406857	11997814	2.57E12	0

# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	75686.4	114347	164943	222028	273399.1

# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
7	158079.3	139831.45	1.26	.94	

Range Restrictions

	Column Name:	Restriction:
AND	catagory	2 ≤ X ≤ 2

X_1: 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2943.81	274.77	21.59	75495.85	9.33	162
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1989.4	4175.11	2185.71	476896.88	1.42E9	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
16	2692.46	2796.88	2898.29	3019.82	3245.82
# > 90th %:	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**	
16	2931.61	2919.76	4.29	1.11	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
95669.85	56047.31	4403.49	3.14E9	58.58	162
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
15768	300160	284392	15498515	1.99E12	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
16	41180.6	50502	82141	124187	171555.1
# > 90th %:	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**	
16	81836.81	70165.87	1.5	1.3	

X_3: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
18425.01	4377.23	343.91	19160132.32	23.76	162
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7334	31367	24033	2984852	5.81E10	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
16	13277.4	15403	17906	21506	23432.8
# > 90th %:	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**	
16	17896.22	17343.5	.05	.31	

X_4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
113838.64	56836.11	4465.47	3.2329	49.93	162

Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
29082	321742	292660	18441860	2.62E12	0

# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
16	55984	68318	99440	145739	188225.6

# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
16	101500.76	90852.05	1.1	1.14	

Range Restrictions

	Column Name:	Restriction:
AND	catagory	$3 \le X \le 3$

X_1: 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2335.56	148.17	25.41	21954.49	6.34	34
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2174.77	2901.74	726.97	79408.94	1.86E8	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	2216.26	2240.34	2283.4	2360.91	2503.56
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
3	2331.33	2327.41	4.85	2.06	

X_2: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
70891.21	17550.47	3009.88	308019063.5	24.76	34
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
28843	117262	88419	2410301	1.81E11	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	51057.1	62864	69756	80453	93713
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
3	68616.48	66038.16	.64	.17	

X_3: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
50762.41	14480.95	2483.46	2.1E8	28.53	34
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
19094	90086	70992	1725922	9.45E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	32761.5	44737	48837.5	60497	70415.5
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
3	48649.27	46309.36	.44	.36	

X_4: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
20393.53	5539.99	950.1	30691522.07	27.17	34

Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
9749	30128	20379	693380	1.52E10	0

# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	12288.3	15617	20211.5	25015	27305.1

# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
3	19573.25	18665.11	-.8	-.25	

Range Restrictions

	Column Name:	Restriction:
AND	catagory	$4 \leq X \leq 4$

X_1 : 83-84 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2541.52	95.69	47.85	9157.49	3.77	4
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2440.81	2653.21	212.4	10166.09	25864818.95	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	●	2463.94	2536.04	2619.1	●
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	2540.17	2538.83	-1.56	.13	

X_2: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
90100.5	27133.9	13566.95	7.36E8	30.12	4
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
53223	117938	64715	360402	3.47E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	●	71890.5	94620.5	108310.5	●
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	86542.73	82569.56	-.99	-.54	

X_3: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
57329.5	17773.7	8886.85	3.16E8	31	4
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
33149	75064	41915	229318	1.41E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	●	44969	60552.5	69670	●
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	54907.32	52189.79	-1.03	-.56	

X_4: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
32771	9431.84	4715.92	88959559.33	28.78	4
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
20074	42874	22800	131084	4562632442	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	•	26901.5	34068	38640.5	•
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	31613.28	30337.1	-.95	-.46	

Range Restrictions

	Column Name:	Restriction:
AND	catagory	5 ≤ X ≤ 5

X_1 : 88-89 Budget Per Pupil

Mean :	Std. Dev. :	Std. Error :	Variance :	Coef. Var. :	Count :
4388.09	980.59	56.33	961547.72	22.35	303
Minimum :	Maximum :	Range :	Sum :	Sum of Sqr. :	# Missing :
2313.9	8338.91	6025.01	1329591.39	6.12E9	0
# < 10th % :	10th % :	25th % :	50th % :	75th % :	90th % :
30	3067.99	3798.84	4291.73	4775.65	5632.55
# > 90th % :	Geo. Mean :	Har. Mean :	Kurtosis :	Skewness :	
30	4286.93	4191.35	1.36	1.03	

X_2 : Wealth Per Pupil

Mean :	Std. Dev. :	Std. Error :	Variance :	Coef. Var. :	Count :
113682.93	67655.32	3886.7	4.58E9	59.51	303
Minimum :	Maximum :	Range :	Sum :	Sum of Sqr. :	# Missing :
34423	623416	588993	34445929	5.30E12	0
# < 10th % :	10th % :	25th % :	50th % :	75th % :	90th % :
30	60462.6	72457.25	95254	129136.25	166951.4
# > 90th % :	Geo. Mean :	Har. Mean :	Kurtosis :	Skewness :	
30	101113.93	92103.97	18.6	3.36	

X_3 : Taxable Income Per Pupil

Mean :	Std. Dev. :	Std. Error :	Variance :	Coef. Var. :	Count :
25283.3	6504.84	373.69	42312915.87	25.73	303
Minimum :	Maximum :	Range :	Sum :	Sum of Sqr. :	# Missing :
9736	75382	65646	7660841	2.06E11	0
# < 10th % :	10th % :	25th % :	50th % :	75th % :	90th % :
30	18505.4	21163.25	24658	28056.25	32475.2
# > 90th % :	Geo. Mean :	Har. Mean :	Kurtosis :	Skewness :	
30	24547.79	23838.21	11.92	2.01	

X_4: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
88168.58	65963.78	3789.52	4.35E9	74.82	303
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
16210	601054	584844	26715080	3.67E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
30	38348.8	48041.25	68638	103185.75	161270.8
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
30	73809.86	64051.2	20.98	3.6	

X_1: 88-89 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
6104.89	1045.78	176.77	1093646.98	17.13	35
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3627.64	8338.91	4711.27	213671.26	1.34E9	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	4731.96	5401.14	6045.78	6724.74	7840.13
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
3	•	5922.51	-.14	.08	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
158599.49	82455.19	13937.47	6.8E9	51.99	35
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
61202	568267	507065	5550982	1.11E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	99089	121620.75	142905	170349.25	211886
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
3	•	137270.42	15.65	3.6	

X_3: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
26237.57	5933.3	1002.91	35204021.08	22.61	35
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
15062	37361	22299	918315	2.53E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	17467	22667.5	25726	30650.5	34404
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
3	•	24816.82	-.7	-.06	

X4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
186836.89	85656.04	14478.51	7.34E9	45.85	35
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
77772	593726	515954	6539291	1.47E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	116556	142644.75	170695	203371	268862
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
3	•	164930.59	12.73	3.16	

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$1 \le X \le 1$

X_1 : 88-89 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4891.9	550.19	66.72	302710.93	11.25	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3703.56	6753.58	3050.02	332649.1	1.65E9	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	4194.82	4602.41	4864.13	5135.07	5581.46
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
7	●	4833.68	1.68	.75	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
105634.85	57267.89	6944.75	3.28E9	54.21	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
32110	375572	343462	7183170	9.79E11	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	53074.5	71964	91192.5	123250	178869.4
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
7	●	84972.78	6.41	2.14	

X_3: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
25371.16	6430.13	779.77	41346521.66	25.34	68
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
14073	45479	31406	1725239	4.65E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	17301.9	21001.5	25086.5	28850	33677.9
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
7	●	23826.84	.55	.64	

X_4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
131006.01	58709.01	7119.51	3.45E9	44.81	68

Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
49511	397864	348353	8908409	1.40E12	0

# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	74032.9	97759.5	116650	147411.5	202416.3

# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
7	•	112516.58	5.41	1.95	

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$2 \le X \le 2$

X_1 : 88-89 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4127.75	447.89	35.63	200609.7	10.85	158
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2313.9	5560.94	3247.04	652184.04	2.72E9	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
16	3584	3832.14	4133.64	4431.87	4651.77
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
16	●	4075.02	1.29	-.37	

X_2: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
75021.87	60487.32	4812.11	3.66E9	80.63	158
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
16210	601054	584844	11853456	1.46E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
16	36600.4	44712	61102.5	82269	121993
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
16	●	56734.12	35.62	4.92	

X_3: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24309.42	5008.12	398.42	25081311.88	20.6	158
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
9736	51618	41882	3840889	9.73E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
16	18783.6	20908	24292.5	27095	29604.2
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
16	●	23304.42	5.07	1.07	

X_4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
99331.12	61291.29	4876.07	3.76E9	61.7	158
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
35487	623416	587929	15694317	2.15E12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
16	57836.5	68355	85141	108891	149749.8
# > 90th %:	Mode:	Har. Mean:	Kurtosis:	Skewness:	
16	•	83103.38	33.2	4.69	

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	3 ≤ X ≤ 3

X_4: 88-89 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3070.53	225.27	37.03	50747.67	7.34	37
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2806.48	3964.73	1158.25	113609.57	3.51E8	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	2894.74	2955.1	3001.66	3094.8	3338.57
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	3063.23	3056.58	5.75	2.28	

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$4 \leq X \leq 4$

X_1: Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
48708.16	11802.73	1940.36	1.39E8	24.23	37
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
22520	77281	54761	1802202	9.29E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	36664.2	41627	46226	56237.25	66478.8
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	47311.45	45868.94	.06	.45	

X_2: Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
25786.14	6026.58	990.76	36319722.51	23.37	37
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
11903	37335	25432	954087	2.59E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	18223.2	22336	25987	29267	32877.6
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	24998.14	24071.14	1	-.35	

X_3: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
74495.38	15344.2	2522.57	2.35E8	20.6	37
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
34423	105557	71134	2756329	2.14E11	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
4	53333.6	64340.25	72884	84021.25	95816
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
4	72832.48	70973.42	.12	-.08	

X_1 : Adjusted Valuation Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
65054	21119.51	9444.93	446033766.5	32.46	5
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
39638	96184	56546	325270	2.29E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	39638	50071.25	64791	77377	96184
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	62327.52	59668.08	-.84	.37	

X_2 : Taxable Income Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
44462.2	19591.55	8761.61	383828742.7	44.06	5
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
27435	75382	47947	222311	1.14E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	27435	27547.5	45779	53443	75382
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	41321.78	38613.29	-.71	.74	

X_3 : 88-89 Budget Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3495.48	253.09	113.18	64053.8	7.24	5
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3292.43	3787.46	495.03	17477.42	61348257.17	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	3292.43	3306.91	3329.04	3764.44	3787.46
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	3488.27	3481.2	-1.32	.41	

X4: Wealth Per Pupil

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
109516.6	40354.23	18046.96	1.63E9	36.85	5
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
67223	171567	104344	547583	6.65E10	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	67223	77543.75	110570	130821	171567
# > 90th %:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:	
0	103899.16	98763.02	-.8	.6	

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	5 ≤ X ≤ 5

APPENDIX B

ONE-FACTOR ANOVA
ON 1983-84 and 1988-89
SCHOOL YEARS

BY
INDIVIDUAL CATEGORIES

One Factor ANOVA X_1 : catagory Y_1 : 83-84 Budget Per Pupil

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	4	107485277.97	26871319.49	172.46
Within groups	299	46588203.54	155813.39	p = .0001
Total	303	154073481.51		

Model II estimate of between component variance = 549865.53

One Factor ANOVA X_1 : catagory Y_1 : 83-84 Budget Per Pupil

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
Group 1	36	4485	820.33	136.72
Group 2	68	3588.62	388.81	47.15
Group 3	162	2943.81	274.77	21.59
Group 4	34	2335.56	148.17	25.41
Group 5	4	2541.52	95.69	47.85

One Factor ANOVA X_1 : catagory Y_1 : 83-84 Budget Per Pupil

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
Group 1 vs. Group 2	896.38	160.13*	30.35*	11.02
Group 1 vs. Group 3	1541.19	143.15*	112.25*	21.19
Group 1 vs. Group 4	2149.44	185.79*	129.62*	22.77
Group 1 vs. Group 5	1943.48	409.45*	21.82*	9.34
Group 2 vs. Group 3	644.81	112.26*	31.95*	11.31

* Significant at 95%

One Factor ANOVA X_1 : catagory Y_1 : 83-84 Budget Per Pupil

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
Group 2 vs. Group 4	1253.06	163.18*	57.1*	15.11
Group 2 vs. Group 5	1047.1	399.7*	6.65*	5.16
Group 3 vs. Group 4	608.25	146.55*	16.68*	8.17
Group 3 vs. Group 5	402.29	393.21*	1.01	2.01
Group 4 vs. Group 5	-205.97	410.65	.24	.99

* Significant at 95%

One Factor ANOVA X_1 : CATAG CODE Y_1 : 88-89 Budget Per Pupil

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	4	199342928.45	49835732.11	163.12
Within groups	298	91044483.24	305518.4	p = .0001
Total	302	290387411.69		

Model II estimate of between component variance = 1007191.35

One Factor ANOVA X_1 : CATAG CODE Y_1 : 88-89 Budget Per Pupil

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
Group 1	35	6104.89	1045.78	176.77
Group 2	68	4891.9	550.19	66.72
Group 3	158	4127.75	447.89	35.63
Group 4	37	3070.53	225.27	37.03
Group 5	5	3495.48	253.09	113.18

One Factor ANOVA X_1 : CATAG CODE Y_1 : 88-89 Budget Per Pupil

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
Group 1 vs. Group 2	1212.99	226.31*	27.82*	10.55
Group 1 vs. Group 3	1977.15	203.23*	91.65*	19.15
Group 1 vs. Group 4	3034.36	256.51*	135.51*	23.28
Group 1 vs. Group 5	2609.41	520.1*	24.38*	9.87
Group 2 vs. Group 3	764.15	157.78*	22.72*	9.53

* Significant at 95%

One Factor ANOVA X_1 : CATAG CODE Y_1 : 88-89 Budget Per Pupil

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
Group 2 vs. Group 4	1821.37	222.24*	65.05*	16.13
Group 2 vs. Group 5	1396.41	504.08*	7.43*	5.45
Group 3 vs. Group 4	1057.22	196.68*	27.42*	10.47
Group 3 vs. Group 5	632.26	494.15*	1.59	2.52
Group 4 vs. Group 5	-424.96	518.34	.65	1.61

* Significant at 95%

APPENDIX C

PEARSON CORRELATION COEFFICIENT
and
REGRESSION ANALYSIS

ON 1983-84 and 1988-89
SCHOOL YEARS

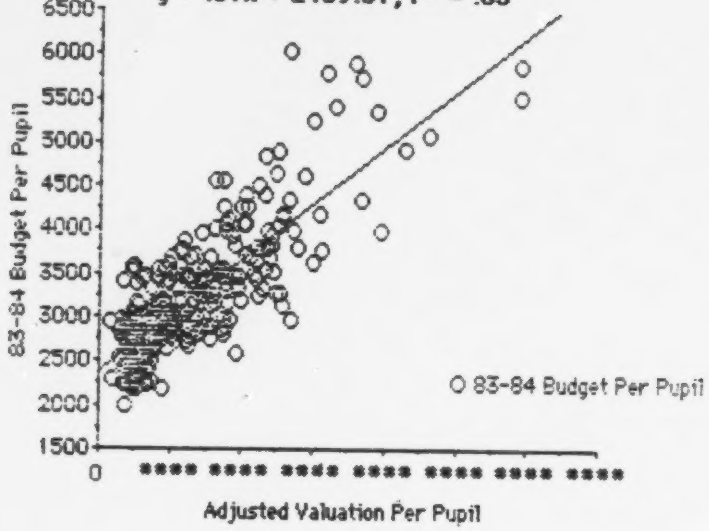
BY STATE
AND
INDIVIDUAL CATEGORIES

Correlation Matrix for Variables: X_1 ... X_4

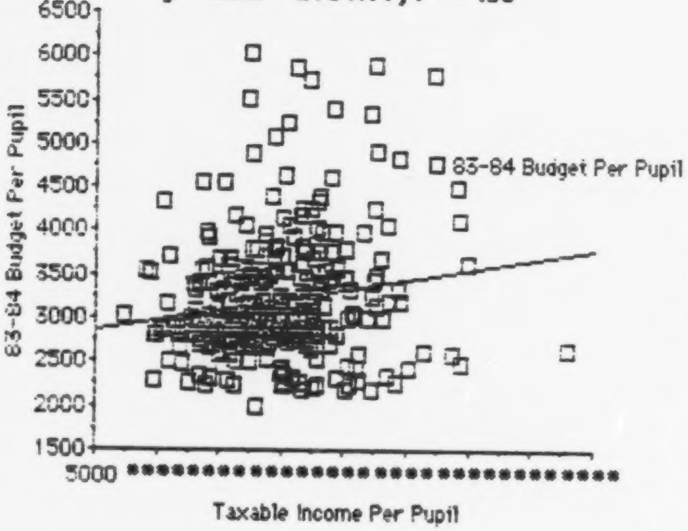
	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.81	1		
Taxable Inco...	.17	.29	1	
Wealth Per P...	.81	1	.34	1

Range Restrictions

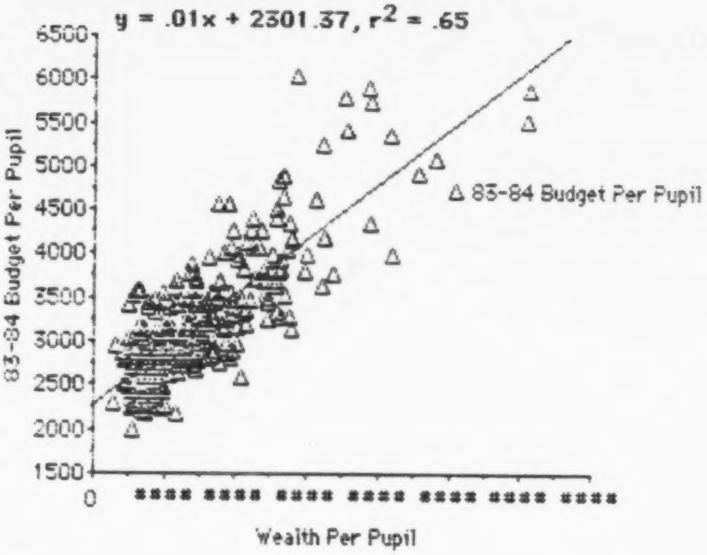
	Column Name:	Restriction:
AND	catagory	$1 \leq X \leq 5$



$y = .01x + 2409.67,\ r^2 = .65$



$y = .02x + 2734.71,\ r^2 = .03$

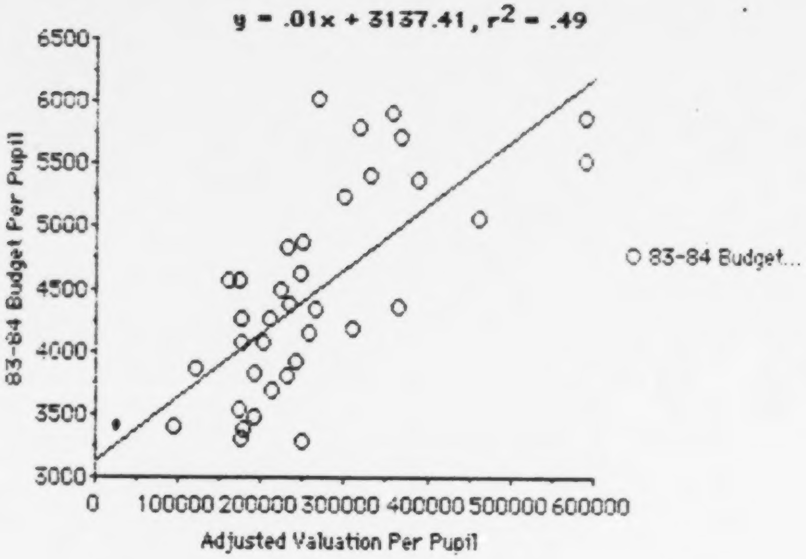

y = .01x + 2301.37, r^2 = .65
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
0
####
83-84 Budget Per Pupil
Wealth Per Pupil
△ 83-84 Budget Per Pupil

Correlation Matrix for Variables: $X_1 \ldots X_4$

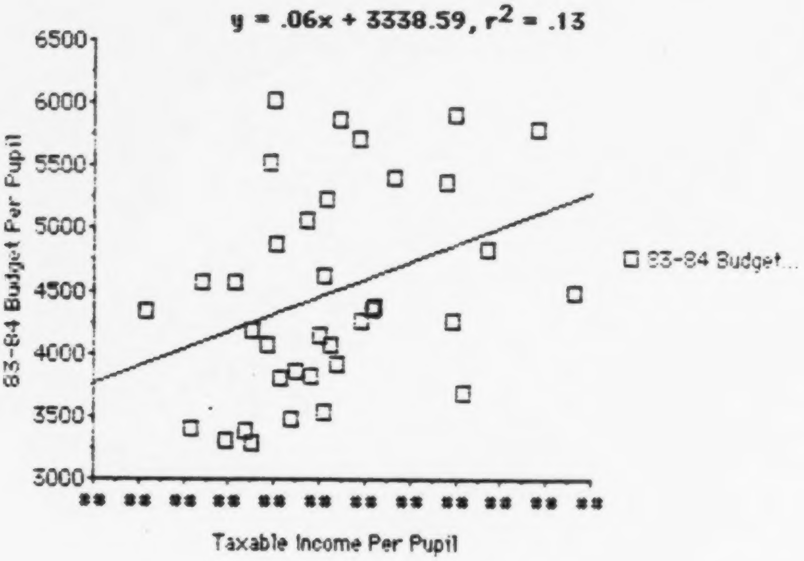
	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.7	1		
Taxable Inco...	.36	.19	1	
Wealth Per P...	.71	1	.23	1

Range Restrictions

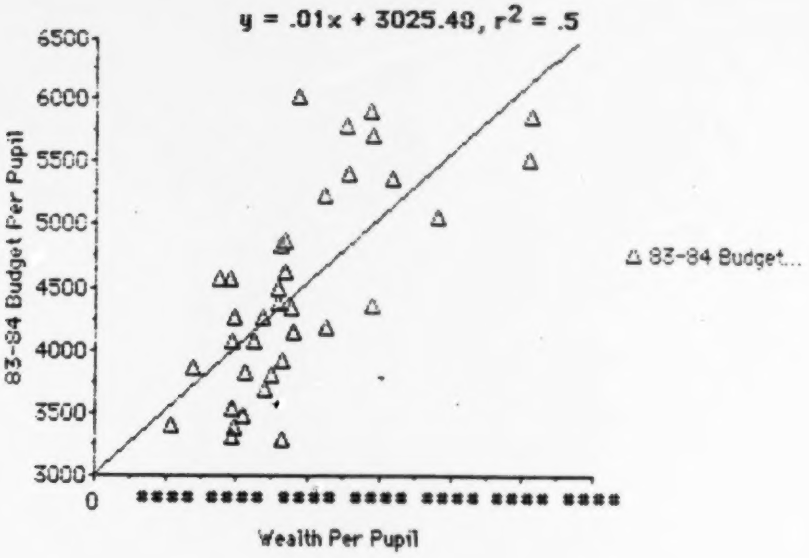
	Column Name:	Restriction:
AND	catagory	$1 \le X \le 1$



y = .01x + 3137.41, r² = .49
83-84 Budget Per Pupil
6500
6000
5500
5000
4500
4000
3500
3000
0
100000
200000
300000
400000
500000
600000
Adjusted Valuation Per Pupil
○ 83-84 Budget...



y = .06x + 3338.59, r² = .13
83-84 Budget Per Pupil
6500
6000
5500
5000
4500
4000
3500
3000
** ** ** ** ** ** ** ** ** ** ** **
Taxable Income Per Pupil
□ 83-84 Budget...



Range Restrictions

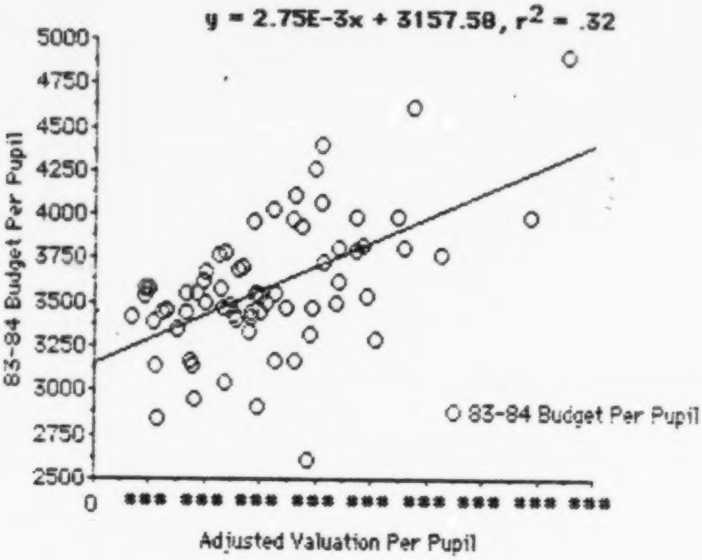
	Column Name:	Restriction:
AND	catagory	1 ≤ X ≤ 1

Correlation Matrix for Variables: X_1 ... X_4

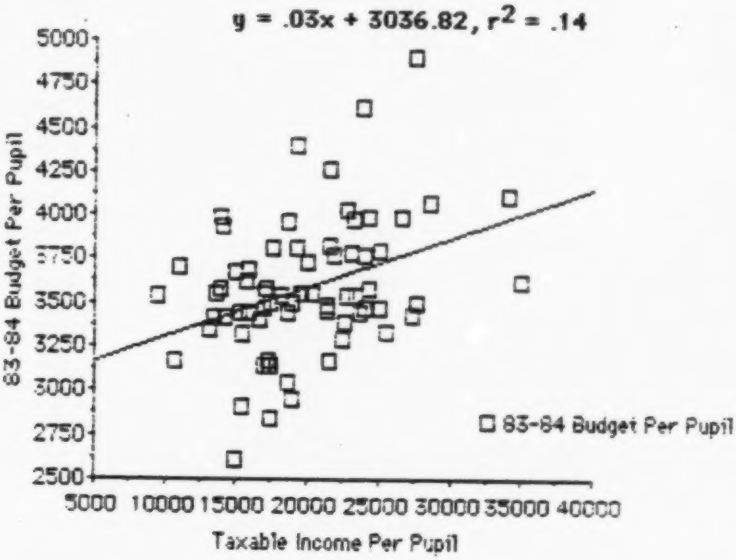
	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.56	1		
Taxable Inco...	.37	.5	1	
Wealth Per P...	.57	1	.54	1

Range Restrictions

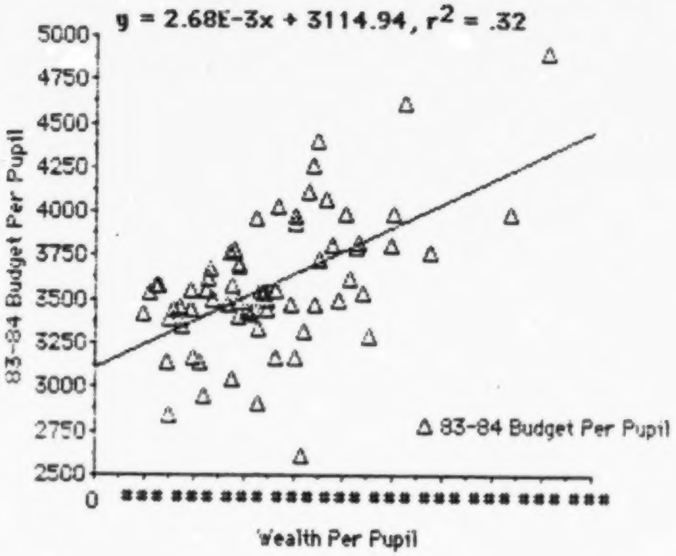
	Column Name:	Restriction:
AND	catagory	$2 \le X \le 2$



y = 2.75E-3x + 3157.58, r^2 = .32
83-84 Budget Per Pupil
5000
4750
4500
4250
4000
3750
3500
3250
3000
2750
2500
0
*** *** *** *** *** *** *** *** *** ***
Adjusted Valuation Per Pupil
○ 83-84 Budget Per Pupil



y = .03x + 3036.82, r^2 = .14
83-84 Budget Per Pupil
5000
4750
4500
4250
4000
3750
3500
3250
3000
2750
2500
5000
10000
15000
20000
25000
30000
35000
40000
Taxable Income Per Pupil
□ 83-84 Budget Per Pupil



Range Restrictions

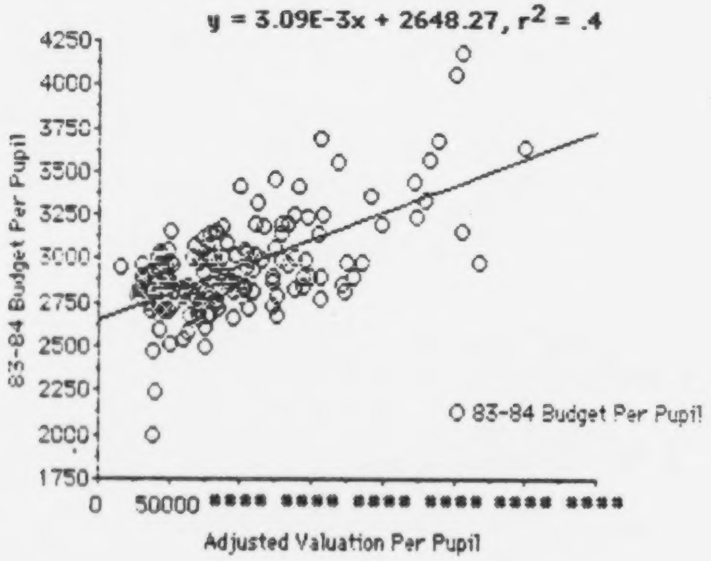
	Column Name:	Restriction:
AND	catagory	2 ≤ X ≤ 2

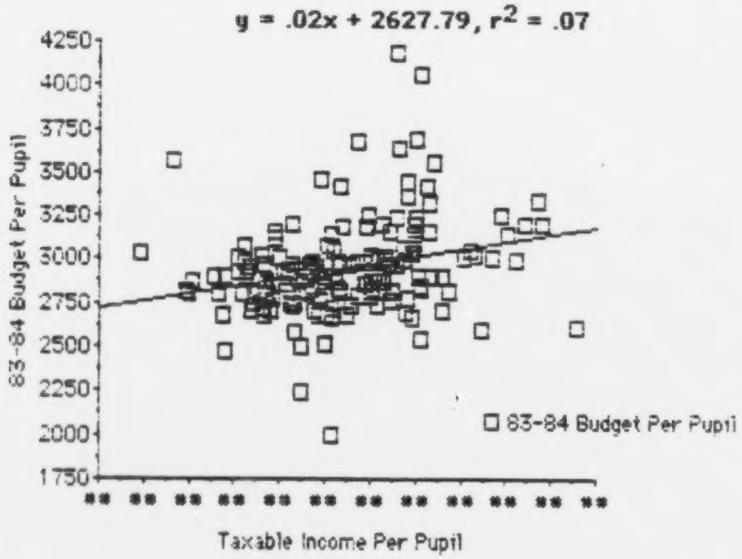
Correlation Matrix for Variables: X_1 ... X_4

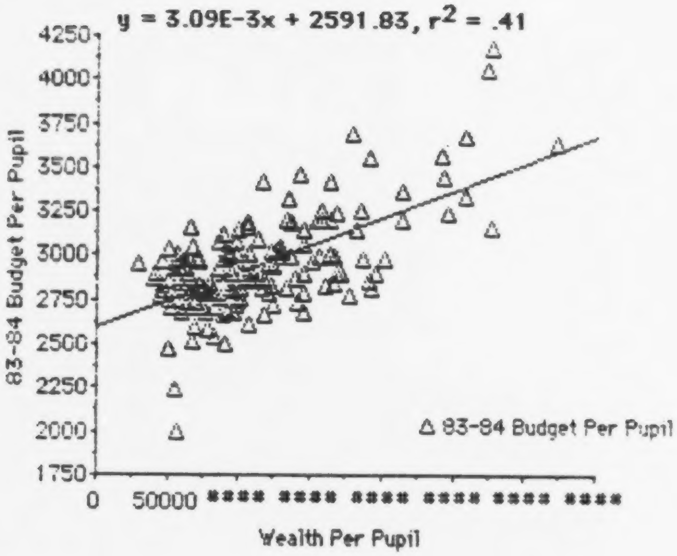
	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.63	1		
Taxable Inco...	.27	.42	1	
Wealth Per P...	.64	.99	.49	1

Range Restrictions

	Column Name:	Restriction:
AND	catagory	$3 \le X \le 3$


y = 3.09E-3x + 2648.27, r^2 = .4
4250
4000
3750
3500
3250
3000
2750
2500
2250
2000
1750
83-84 Budget Per Pupil
0
50000
####
####
####
####
####
####
Adjusted Valuation Per Pupil
○ 83-84 Budget Per Pupil


y = .02x + 2627.79, r^2 = .07
4250
4000
3750
3500
3250
3000
2750
2500
2250
2000
1750
83-84 Budget Per Pupil
** ** ** ** ** ** ** ** ** ** ** **
Taxable Income Per Pupil
□ 83-84 Budget Per Pupil



Range Restrictions

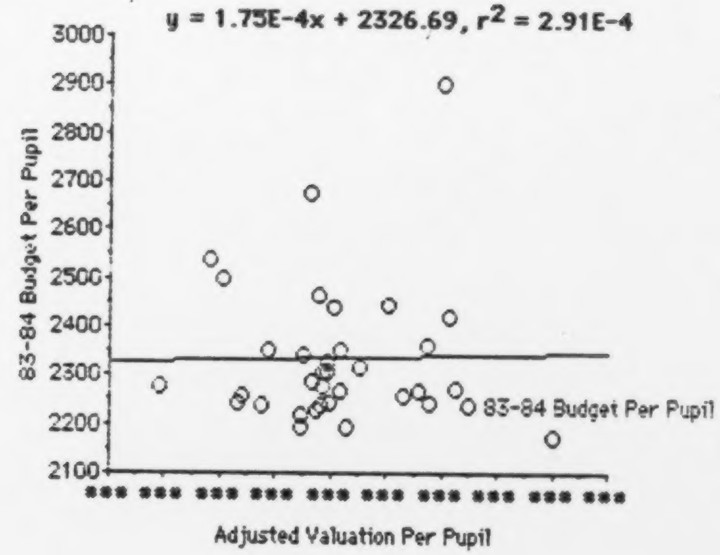
	Column Name:	Restriction:
AND	catagory	3 ≤ X ≤ 3

Correlation Matrix for Variables: X_1 ... X_4

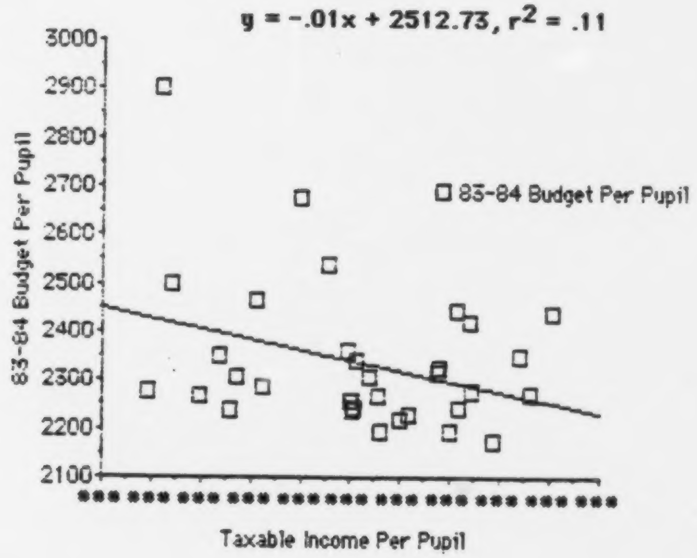
	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.02	1		
Taxable Inco...	-.32	.43	1	
Wealth Per P...	-.08	.94	.69	1

Range Restrictions

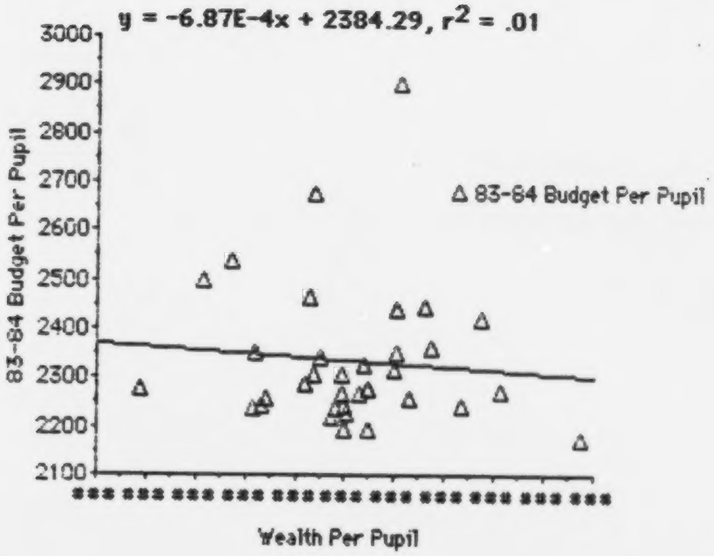
	Column Name:	Restriction:
AND	catagory	4 ≤ X ≤ 4



$y = 1.75E{-}4x + 2326.69,\ r^2 = 2.91E{-}4$



$y = -.01x + 2512.73,\ r^2 = .11$



Range Restrictions

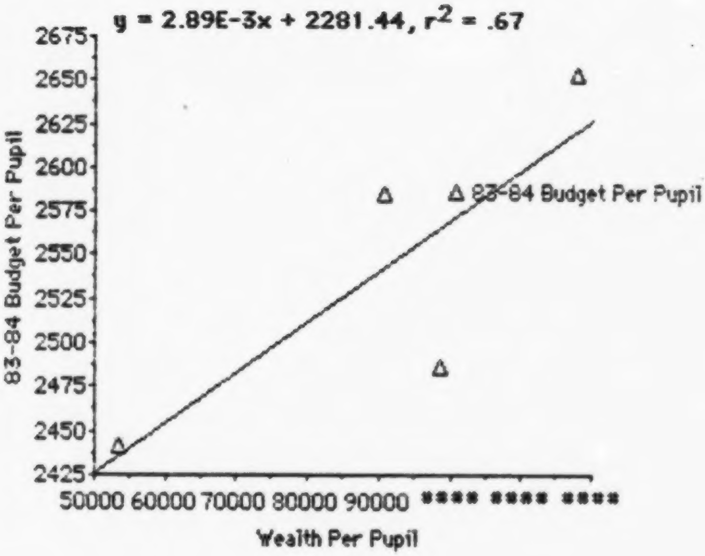
	Column Name:	Restriction:
AND	catagory	4 ≤ X ≤ 4

Correlation Matrix for Variables: X_1 ... X_4

	83-84 B...	Adjuste...	Taxable ...	Wealth P...
83-84 Budge...	1			
Adjusted Val...	.79	1		
Taxable Inco...	.87	.99	1	
Wealth Per P...	.82	1	1	1

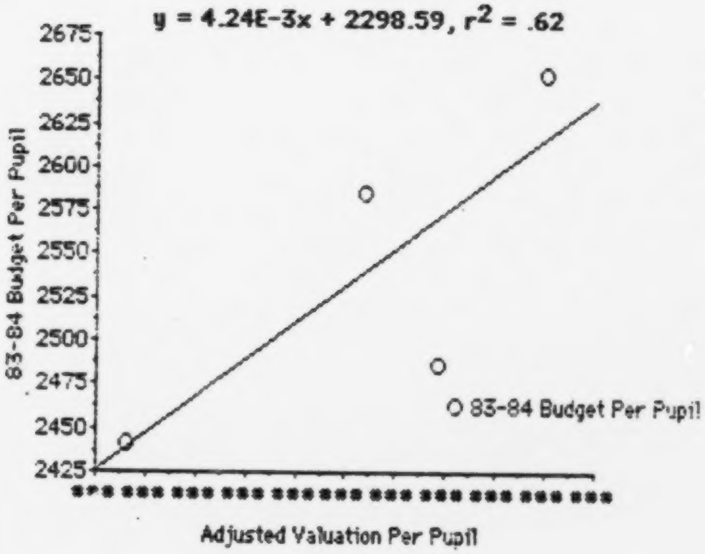
Range Restrictions

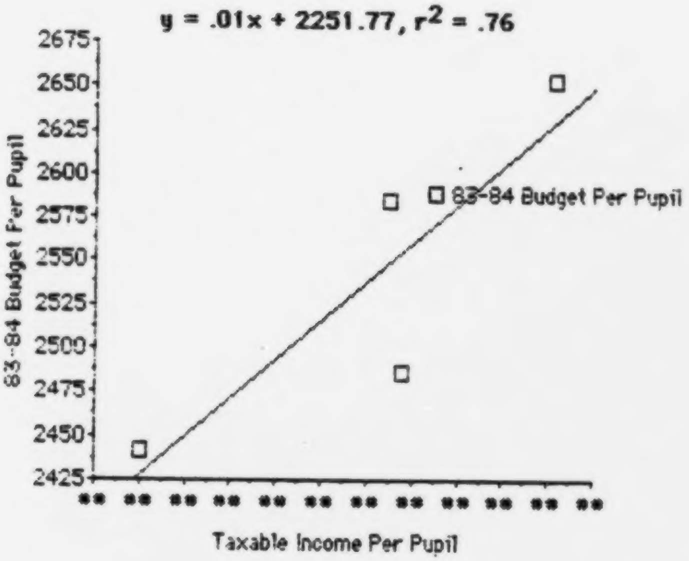
	Column Name:	Restriction:
AND	catagory	5 ≤ X ≤ 5



Range Restrictions

	Column Name:	Restriction:
AND	catagory	5 ≤-X ≤ 5


y = 4.24E-3x + 2298.59, r2 = .62
83-84 Budget Per Pupil
2675
2650
2625
2600
2575
2550
2525
2500
2475
2450
2425
O 83-84 Budget Per Pupil
Adjusted Valuation Per Pupil

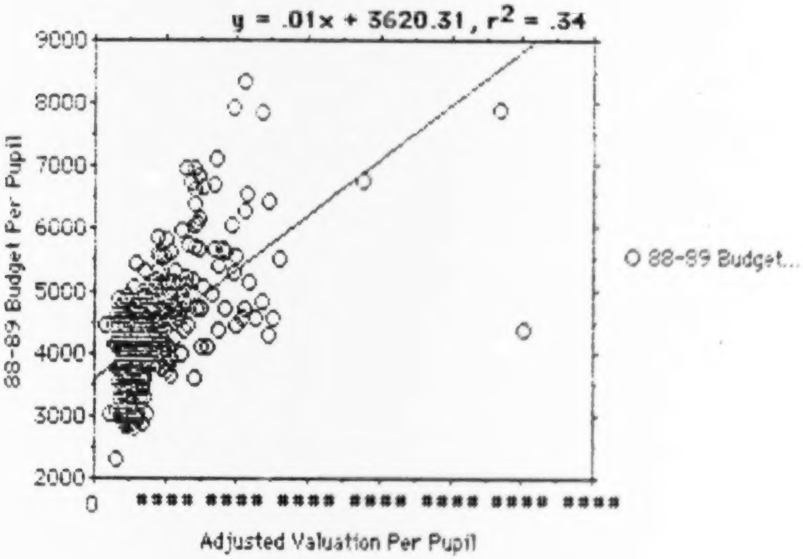

y = .01x + 2251.77, r2 = .76
83-84 Budget Per Pupil
2675
2650
2625
2600
2575
2550
2525
2500
2475
2450
2425
□ 83-84 Budget Per Pupil
Taxable Income Per Pupil

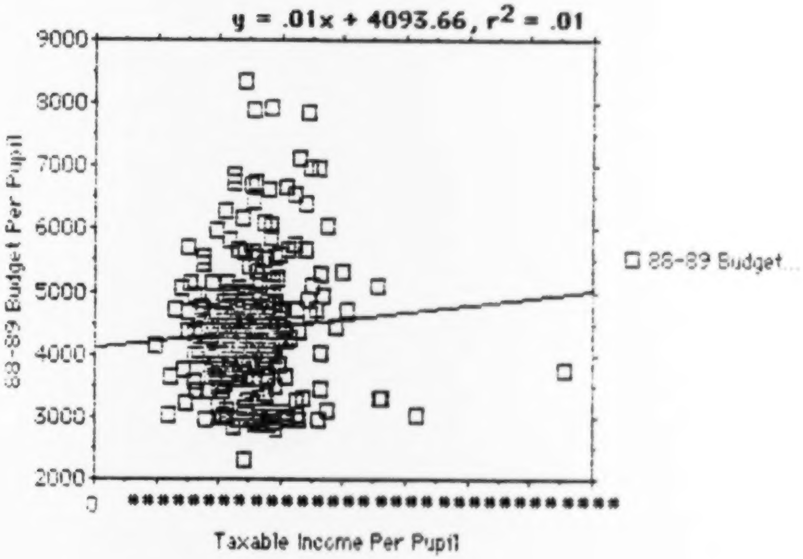
Correlation Matrix for Variables: X_1 ... X_4

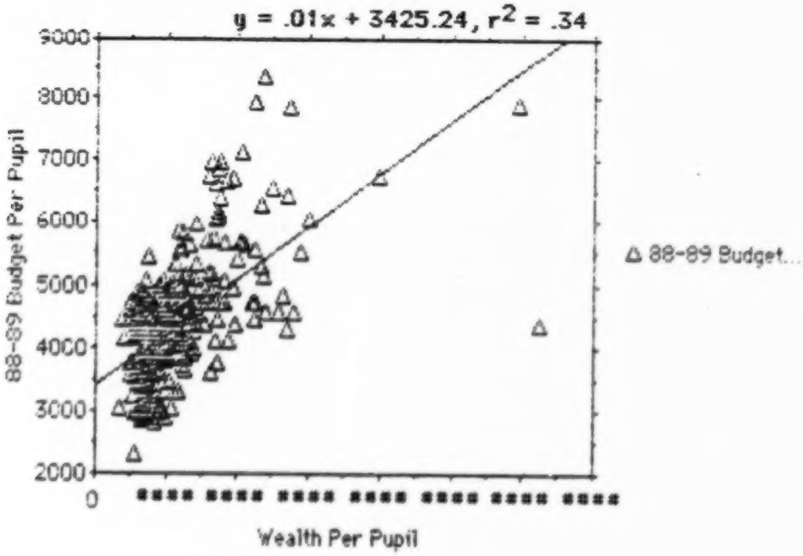
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.59	1		
Taxable Inco...	.08	.13	1	
Wealth Per P...	.58	.99	.23	1

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$1 \leq X \leq 5$


y = .01x + 3620.31 , r2 = .34
9000
8000
7000
6000
5000
4000
3000
2000
0
####
88-89 Budget Per Pupil
Adjusted Valuation Per Pupil
○ 88-89 Budget...


y = .01x + 4093.66, r2 = .01
9000
8000
7000
6000
5000
4000
3000
2000
0
****
88-89 Budget Per Pupil
Taxable Income Per Pupil
□ 88-89 Budget...



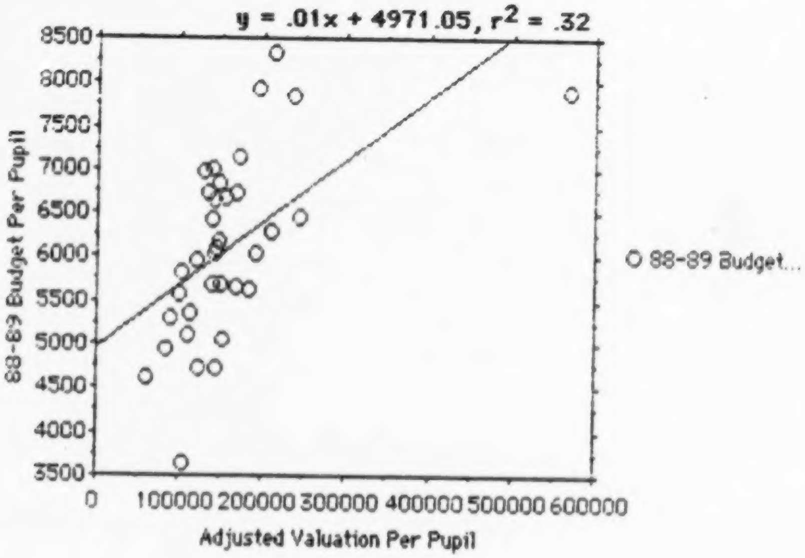
y = .01x + 3425.24, r² = .34
9000
8000
7000
6000
5000
4000
3000
2000
88-89 Budget Per Pupil
0
####
Wealth Per Pupil
△ 88-89 Budget...

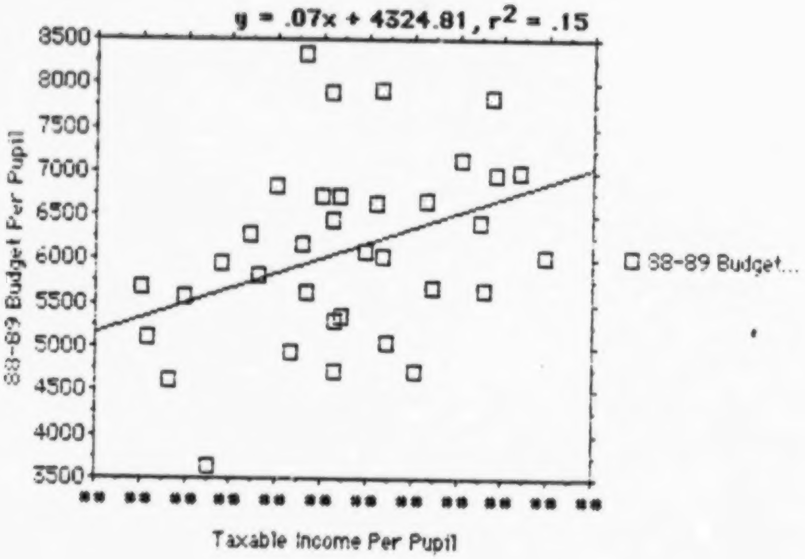
Correlation Matrix for Variables: X_1 – X_4

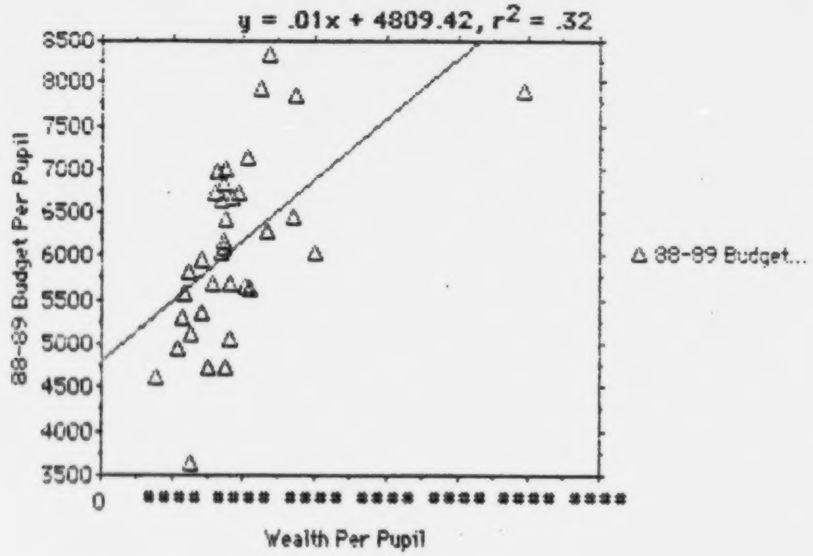
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.56	1		
Taxable Inco...	.38	.19	1	
Wealth Per P...	.57	.99	.29	1

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	1 ≤ X ≤ 1


y = .01x + 4971.05, r² = .32
88-89 Budget Per Pupil
8500
8000
7500
7000
6500
6000
5500
5000
4500
4000
3500
0
100000
200000
300000
400000
500000
600000
Adjusted Valuation Per Pupil
○ 88-89 Budget...


y = .07x + 4324.81, r² = .15
88-89 Budget Per Pupil
8500
8000
7500
7000
6500
6000
5500
5000
4500
4000
3500
** ** ** ** ** ** ** ** ** ** ** **
Taxable Income Per Pupil
□ 88-89 Budget...



Range Restrictions

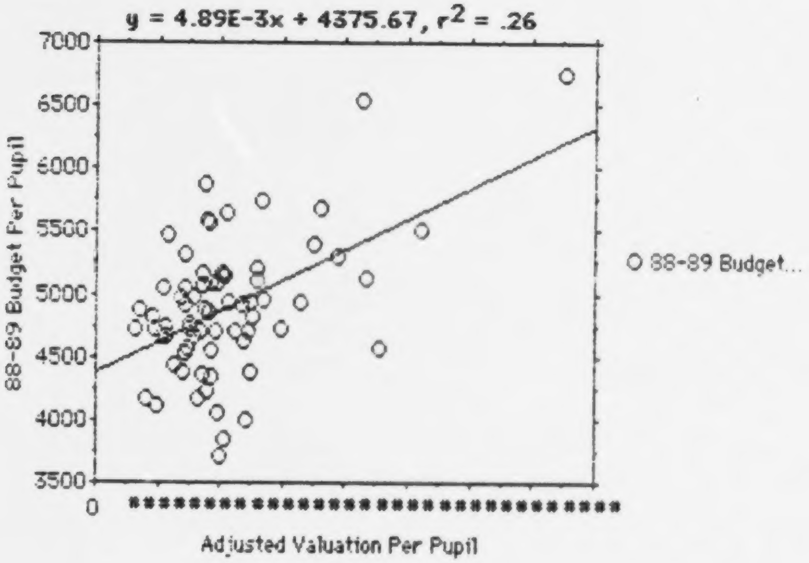
	Column Name:	Restriction:
AND	CATAG CODE	1 ≤ X ≤ 1

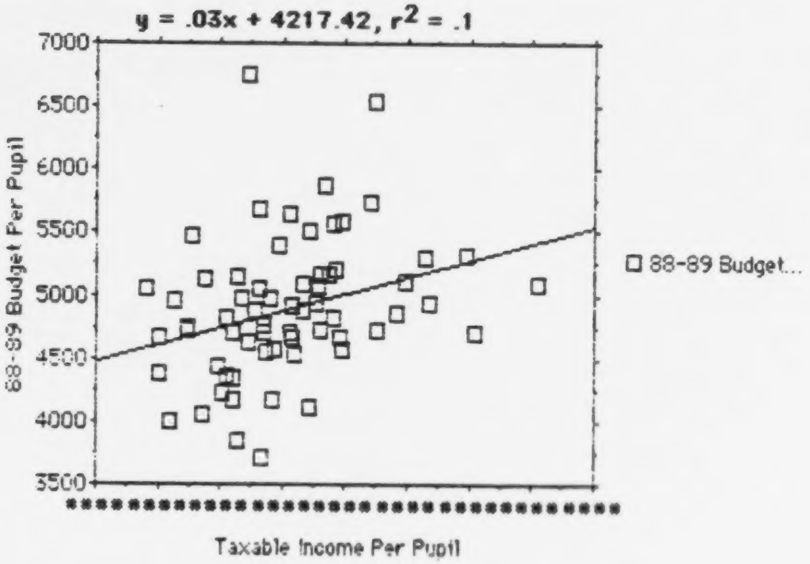
Correlation Matrix for Variables: X_1 ... X_4

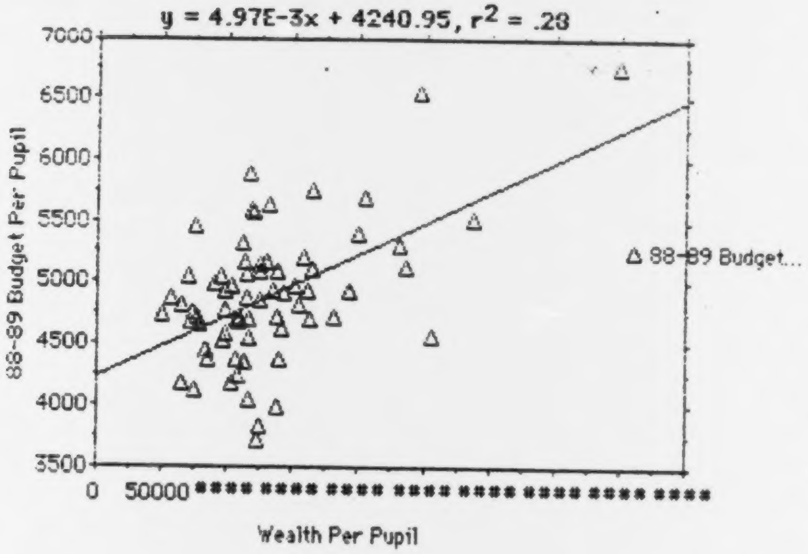
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.51	1		
Taxable Inco...	.31	.17	1	
Wealth Per P...	.53	.99	.28	1

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$2 \le X \le 2$


y = 4.89E-3x + 4375.67, r2 = .26
7000
6500
6000
5500
5000
4500
4000
3500
0
88-89 Budget Per Pupil
Adjusted Valuation Per Pupil
○ 88-89 Budget...


y = .03x + 4217.42, r2 = .1
7000
6500
6000
5500
5000
4500
4000
3500
88-89 Budget Per Pupil
Taxable Income Per Pupil
□ 88-89 Budget...



Range Restrictions

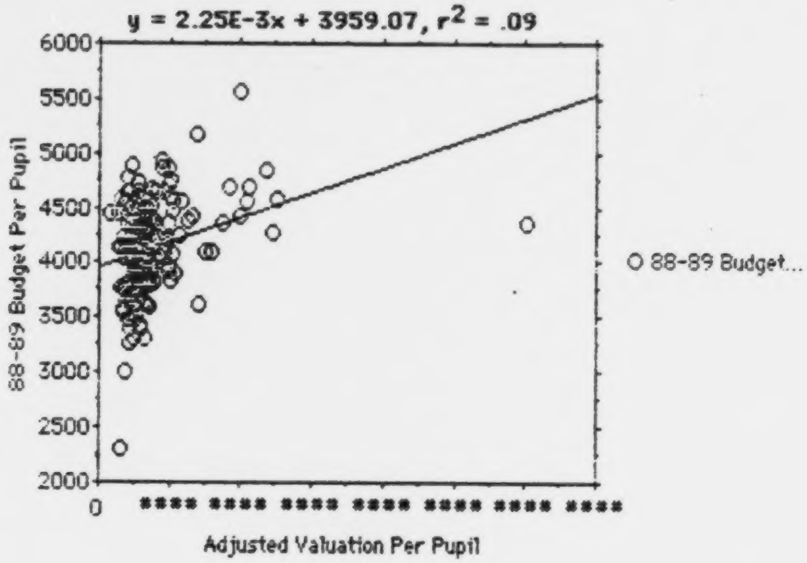
	Column Name:	Restriction:
AND	CATAG CODE	2 ≤ X ≤ 2

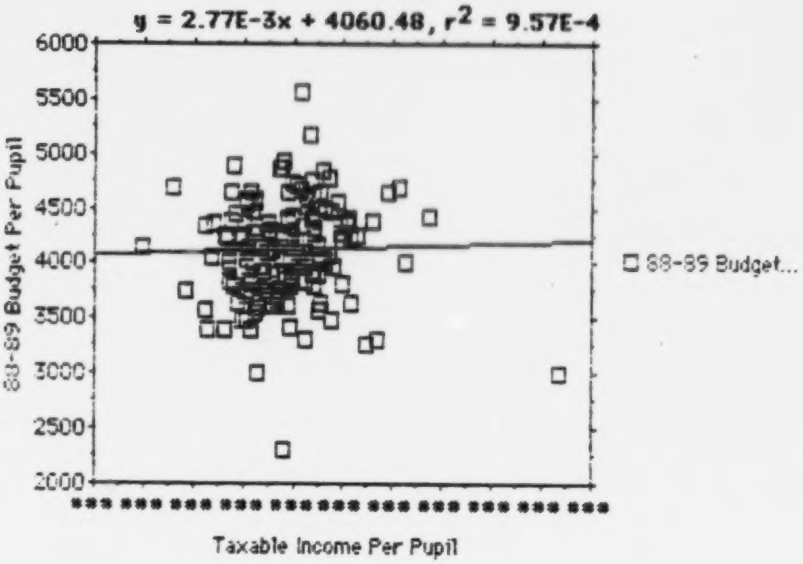
Correlation Matrix for Variables: X_1 ... X_4

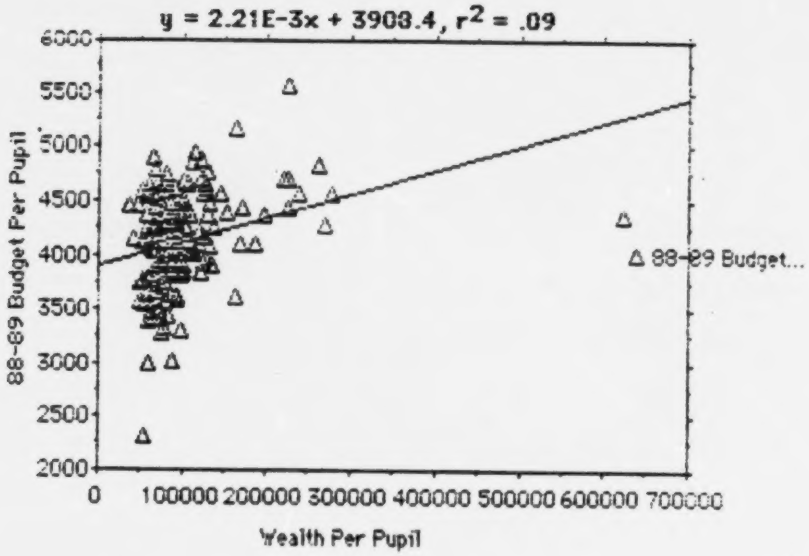
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.3	1		
Taxable Inco...	.03	.12	1	
Wealth Per P...	.3	1	.2	1

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$3 \le X \le 3$


y = 2.25E-3x + 3959.07, r² = .09
6000
5500
5000
4500
4000
3500
3000
2500
2000
88-89 Budget Per Pupil
0
**** **** **** **** **** **** ****
Adjusted Valuation Per Pupil
○ 88-89 Budget...


y = 2.77E-3x + 4060.48, r² = 9.57E-4
6000
5500
5000
4500
4000
3500
3000
2500
2000
88-89 Budget Per Pupil
*** *** *** *** ****** *** *** *** *** ***
Taxable Income Per Pupil
□ 88-89 Budget...



Range Restrictions

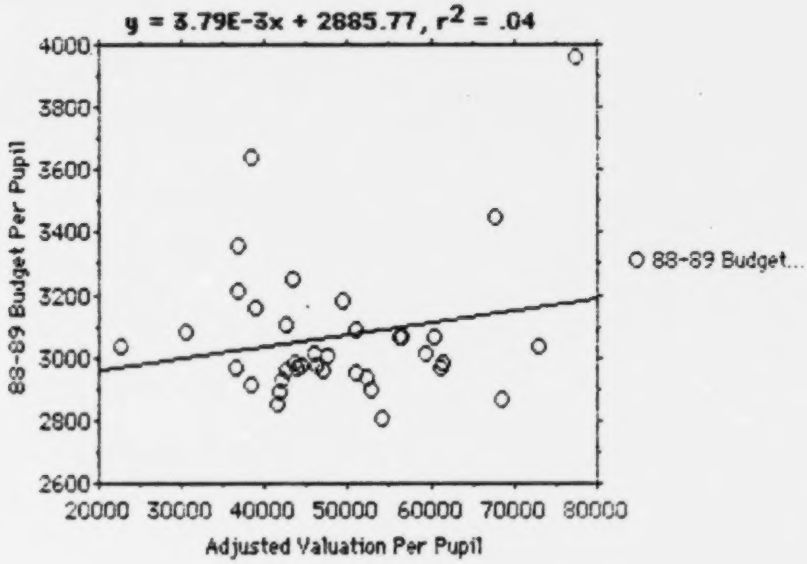
	Column Name:	Restriction:
AND	CATAG CODE	3 ≤ X ≤ 3

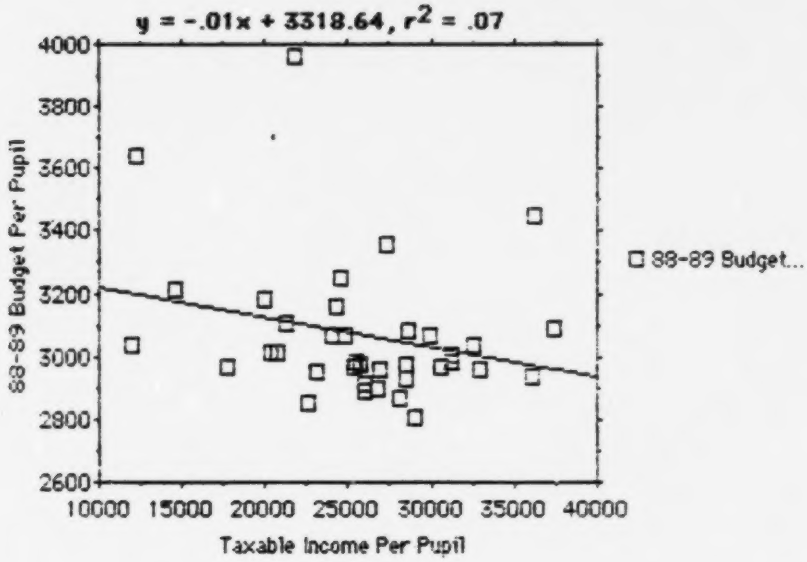
Correlation Matrix for Variables: X_1 ... X_4

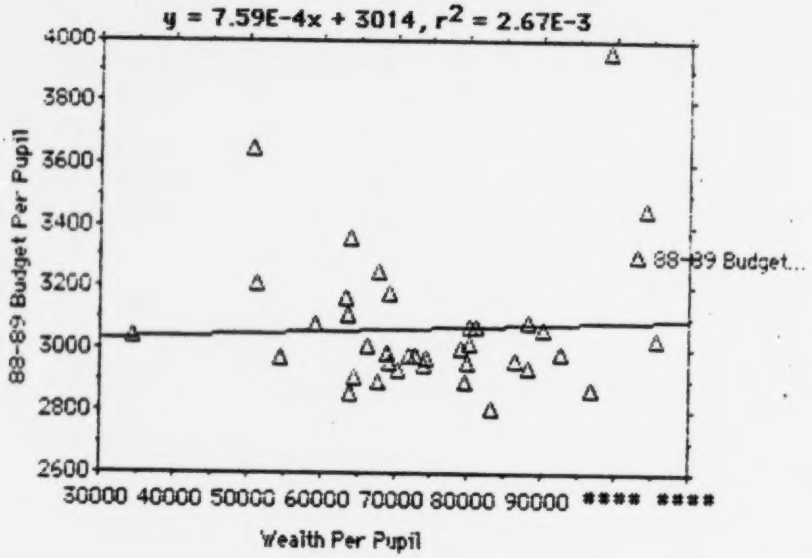
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.2	1		
Taxable Inco...	-.26	.42	1	
Wealth Per P...	.05	.93	.72	1

Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	$4 \le X \le 4$


$y = 3.79E-3x + 2885.77, r^2 = .04$
88-89 Budget Per Pupil
4000
3800
3600
3400
3200
3000
2800
2600
20000
30000
40000
50000
60000
70000
80000
Adjusted Valuation Per Pupil
○ 88-89 Budget...


$y = -.01x + 3318.64, r^2 = .07$
88-89 Budget Per Pupil
4000
3800
3600
3400
3200
3000
2800
2600
10000
15000
20000
25000
30000
35000
40000
Taxable Income Per Pupil
□ 88-89 Budget...



Range Restrictions

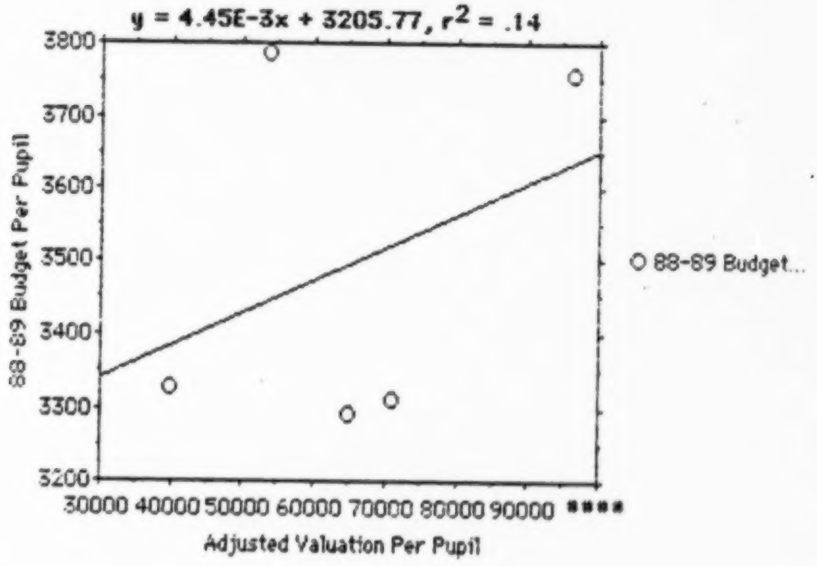
	Column Name:	Restriction:
AND	CATAG CODE	4 ≤ X ≤ 4

Correlation Matrix for Variables: $X_1 \ldots X_4$

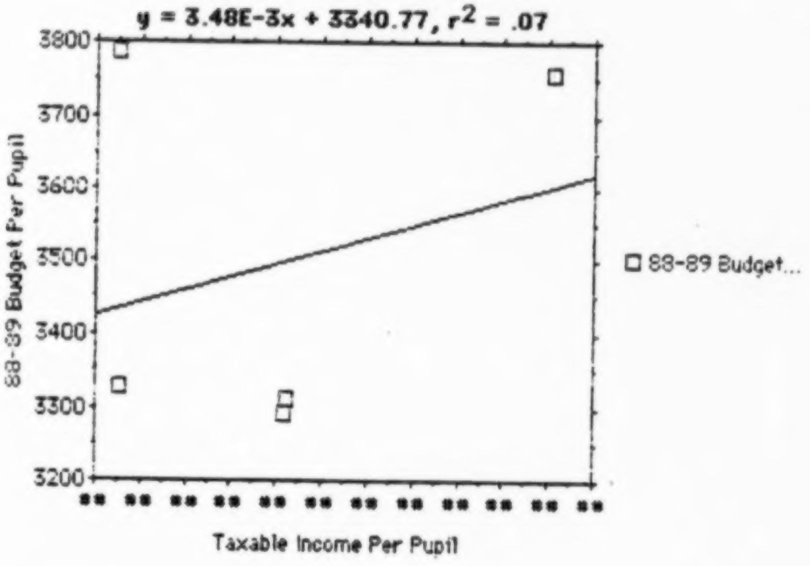
	88-89 B...	Adjuste...	Taxable ...	Wealth P...
88-89 Budge...	1			
Adjusted Val...	.37	1		
Taxable Inco...	.27	.97	1	
Wealth Per P...	.33	.99	.99	1

Range Restrictions

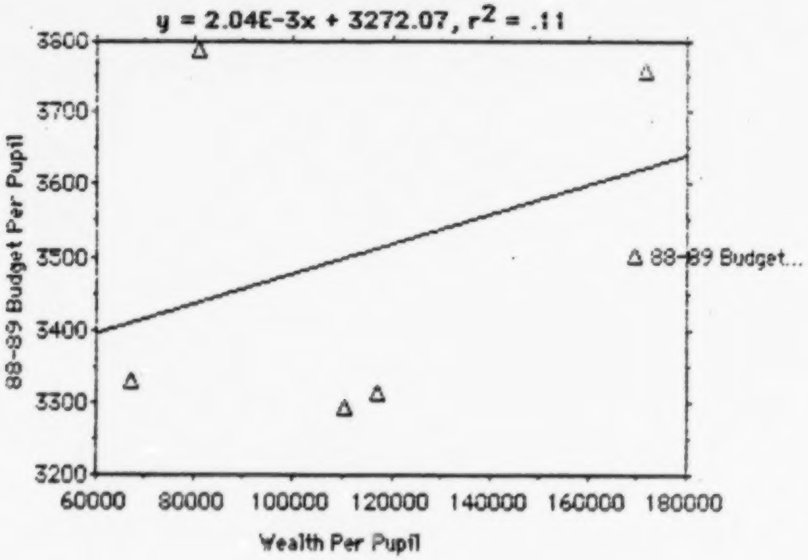
	Column Name:	Restriction:
AND	CATAG CODE	$5 \le X \le 5$



$y = 4.45E\text{-}3x + 3205.77$, $r^2 = .14$



$y = 3.48E\text{-}3x + 3340.77$, $r^2 = .07$



Range Restrictions

	Column Name:	Restriction:
AND	CATAG CODE	5 ≤ X ≤ 5